

# FINANCIAL TIMES



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Separate sections

World Business Newspaper <http://www.ft.com>

THURSDAY SEPTEMBER 26 1996

## Spying row puts US-Korea links under pressure

A civilian computer expert working for the US Office of Naval Intelligence, was arrested in Washington and charged with passing on classified information to a South Korean agent. The arrest threatened to further strain relations between the US and South Korea. Seoul has been pressing Washington to adopt a tough stance against the communist North after the recent intrusion of a North Korean submarine into South Korean waters. Page 5

**Inquiry denied on IRA shootings** Irish prime minister John Bruton backed calls for an independent inquiry into the shooting of IRA suspect Diarmuid O'Neill, amid claims by some politicians that British police may have operated a "shoot to kill" policy. Page 8; Ireland's mascot for the gullible, Page 10

**Yeltsin's heart operation delayed**



Russian president Boris Yeltsin (above) met pioneering US heart surgeon Michael DeBakey in Moscow as it was announced that his by-pass operation will be delayed for up to eight weeks. The delay has sparked fears in Russia and the west about the president's ability to control his quarrelling subordinates. Page 12

**Lord Hanson to step down** Lord Hanson, Britain's most swashbuckling takeover king and the scourge of sleepy managements on both sides of the Atlantic, will retire from the chair of Hanson next year. Page 13

**Ministers push for IT trade deal** Trade ministers from the US, EU, Japan and Canada meet today in Seattle to try to end squabbling which has thwarted a free trade deal for information technology products. Page 6

**Fed warned over interest rates** The International Monetary Fund warned the US Federal Reserve that it will have to get over its reluctance to raise interest rates soon to avoid a sharper rise later. Page 12

**Volvo aims for two-year turnaround** Swedish vehicles group Volvo expects to take up to two years to turn round its unprofitable US truck business despite the launch of an important new model. Page 15

**Lehman reveals fall in earnings** Lehman Brothers, the first of the US investment banks to publish third-quarter earnings, reported net income of \$77m, down from \$108m in the second quarter. Page 17

**France threatens US over NATO** France threatened to hold back from rejoining Nato's military wing in a dispute with the US over who controls Europe's regional commands. Page 3

**Plea over Bosnia's refugees** Bosnia's president Alija Izetbegovic said that international efforts there would be at risk unless more refugees are able to return home. Only a handful of the 2m have been able to do so. Page 3

**Mandela firm on death penalty** South African president Nelson Mandela said he would not consider reinstating the death penalty despite a poll showing 93 per cent of South Africans are in favour of it to fight violent crime.

**Airlines link-up at risk** British Airways may walk away from a proposed link with American Airlines over conditions the UK Office of Fair Trading is thought to be considering. These may involve the airlines having to surrender some slots at Heathrow airport. Page 6

**Japan acts over insurance row** Tokyo tried to avert a row with the US over Japan's insurance market, the world's second largest and a lucrative area for foreign insurers. Page 6

**Pan Am flies against** One of the best-known names in aviation history takes to the skies again today when the new Pan American World Airways launches its inaugural flight from New York to Miami. Page 17

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STOCK MARKET INDICES		GOLD	
New York Composite	4,740	New York Gold	385.7
Dow Jones Ind. Av.	2,228.39	Dec	386.3
NASDAQ Composite	65.12	London	382.85
Europe and Far East		Close	382.05
CAC40	2,103.41		
DAI	2,884.37		
FT-SE 100	3,925.17		
Nikkei	21,395.67		
US LUNCHTIME RATES		DOLLAR	
Federal Funds	5 1/8%	New York Composite	4,740
3-mth Treas. Bill Yld	5.062%	DM	1.512
Long Bond	5.55%	FF	5.1188
		Sfr	1.2299
		Y	110.255
OTHER RATES		STERLING	
UK 3-mth Interbank	5 1/8%	Dec	2.3827
FR 10 yr Govt	6.0%	Jan	2.3827
FR 10 yr Euribor	5.8%		
Germany 10 yr Bund	5.8%		
Japan 10 yr JGB	5.8%		
NORTH SEA OIL (Average)			
Brent Dated	22.75		
	(22.75)		

## Crédit Lyonnais to get \$760m rescue ■ Paris warned to keep EU informed Brussels backs French bank bail-out

By Neil Buckley in Brussels and Andrew Jack in Paris

The European Commission yesterday approved a FF4.9bn (\$760m) bail-out of Crédit Lyonnais but sharply criticised the French government for failing to keep it informed of the troubled bank's dire state.

The plan is likely to be closely studied by other European banks. Last year's package was criticised in particular by other French banks, which argued it was too generous and distorted competition.

Squeezing out Page 2  
Editorial Comment Page 11  
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ing bigger disposals by the bank than the 35 per cent of its foreign assets agreed last year.

sure the bank's future would have been in doubt. "If you are interested in [buying] Crédit Lyonnais, I am sure you can get it for one symbolic franc," he said.

offset the losses and to reopen discussions on action to safeguard the bank's future.

France's economic slowdown. Mr Van Miert warned France to keep the Commission more closely informed of its plans, complaining that it only recently became aware of the extent of the bank's problems.



## Israeli troops in gun battle on West Bank

By Judy Dempsey in Jerusalem

Israeli troops yesterday fought gun battles with Yasser Arafat's police in the West Bank city of Ramallah, killing at least four Palestinians and wounding more than 200.

of the Palestinian Authority, yesterday pleaded with Palestinian police who control Ramallah to hold their fire and stay within the town's boundaries.

## \$33m offer to settle accounting error claim British Telecom in deal to enter French market

By Andrew Hill in Milan

The Italian arm of Price Waterhouse, the international accounting firm, has offered to pay L51bn (\$33.88m) to Montedison, the Italian industrial company, and its parent Compart, formerly known as Ferruzzi Finanziaria (Perfin), to settle a L1,650bn negligence claim.

By FT reporters

British Telecommunications is today expected to announce it has filled the last big gap in its European strategy through a strategic alliance with a French partner.

to full competition on January 1 1998. Générale des Eaux disclosed earlier this month that discussions were in progress with a number of "large international groups" interested in taking a stake in a telecoms division it was setting up that would be known as Cogefel.

Palestinian youths take to the streets of Gaza yesterday to protest against the opening of a tunnel in the old city of Jerusalem. Witnesses said the protesters threw stones as they moved towards the outskirts of the Arab city of Ramallah.

Witnesses said the youths moved towards the outskirts of the Arab city of Ramallah whose entrance is manned by Israeli checkpoints. They threw stones, reminiscent of the intifada, or uprising by Palestinians in the Israeli-occupied territories in late 1987.

Officials from Israel's opposition Labour party said the opening of the tunnel was bad timing.

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Capital markets Page 32

Continued on Page 12

**Businessmen get time for not paying tax. 10 years.**

Report by Alan Core and Nicholas Denton in London and David Owen in Paris

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**TYNE WEAR**



# France stands firm on Nato

By Bruce Clark in Bergen

France said yesterday it would not rejoin Nato's military wing unless the US kept its promise to give its European partners greater independence within the alliance.

Mr Charles Millon, the French defence minister told a Nato meeting his country would "remain in its current position" unless the pre-conditions spelt out by President Jacques Chirac for reintegrating with the Alliance were met.

"The issue of renewing Nato will only be resolved when the conditions laid out by the president have been taken into account," he said, referring to France's demand for a more visible European wing of the Alliance.

At a Nato meeting in Norway, the French minister made clear that one of the tests of American goodwill was the controversial issue of who should command alliance forces in southern Europe.

The highly sensitive southern command, based at Naples and responsible for overseeing the Mediterranean and North Africa, has always been held by a US officer. France thinks it should go to a European.

Nato officials said France's position was broadly supported yesterday by Germany, Italy and Spain, but firmly opposed by the US, and dismissed by Britain as unrealistic.

Nato agreed in principle in June to reform the alliance to give European members

the option of organising military operations without direct US involvement.

France has said it wants the broad outline of this reform, which will involve a sharp reduction in the total number of command posts, to be complete by the end of this year.

At yesterday's meeting, Mr William Perry, the US defence secretary reaffirmed Washington's view that US officers must retain the Naples job, which includes responsibility for air, sea and land operations in former Yugoslavia as well as the Aegean.

The defence ministers also sketched out guidelines for a military mission to Bosnia next year, and several called for a tougher mandate to pursue war criminals.

The term "FOFOR" - following-on to the 52,000-strong Implementation Force currently deployed in Bosnia - gained currency yesterday as a new piece of Nato jargon. "Nobody disagreed with the idea of a FOFOR" said an official who attended the talks.

While stressing that no formal decisions were likely for at least two months, Nato ministers broadly accepted the view of Mr Javier Solana, the secretary-general, that the alliance should remain involved in Bosnia after the expiry of its mandate in December.

Mr Millon said a two-year plan to consolidate peace in Bosnia should be mapped out - and it should include a clearly defined role for a new military mission,

including both Europeans and American. Ministers agreed that the new force, while smaller than IFOR, should have a robust rapid-reaction capacity.

Mr Volker Ruhe of Germany is the only Western defence minister to have spoken in any detail about the shape of a successor force to IFOR. He says he expects a mission of about 20,000, of which between 2,000 and 3,000, including combat troops and senior officers, would be German.

Mr Ruhe has also floated the idea that a Franco-German brigade headquarters could be deployed to Bosnia to oversee one of the Republic's three military sectors - leaving the US and Britain with responsibility for the other two.

# Government aid seals Italian jobs accord

By Robert Graham in Rome

The Italian centre-left government has organised an agreement between employers and unions to stimulate jobs in return for government assistance worth L15,000bn (\$9.8bn) over the next three years.

The deal falls short of demands by Confindustria, the industrialists' federation, for full flexibility in the labour market. But it will soften the impact of a tough 1997 budget and help head off pay unrest.

The final details of the budget were being negotiated yesterday between the six main parties backing the government of Mr Romano Prodi in advance of tomorrow's crucial cabinet meeting which is due to endorse the financial package.

According to officials, the government is now looking to find L87,000bn in spending cuts and new revenues against the L92,000bn outlined in July in order to hold

the deficit to 4.4 per cent of GDP.

The extra amount has become necessary as a result of a shortfall in revenues due to the sharper than expected slowdown in the economy.

The government also seems likely to adopt treasury proposals for additional budgetary measures totalling L20,000bn early next year to ensure that Italy meets the convergence criteria for economic and monetary union.

This follows the realisation after last weekend's Dublin meeting of EU ministers that Italy is unlikely to obtain special treatment if it fails to make a serious effort to meet the criteria.

Yesterday, the government's confidence in its ability to endorse a credible budget was reflected in the financial markets as the lira strengthened against the D-Mark and government bonds reached new highs.

Against the background of

an austerity budget, the government was yesterday keen to present the employment package as a means of encouraging new investment when the economy was growing at little more than 0.5 per cent.

Of the total funds, L10,000bn was already approved in July for special projects in 1997-99. The key element in the agreement has been the concessions on job creation that employers and unions have wrung from the government.

The employers have gained tax breaks on social security contributions and on some investment costs related to new hirings. Especially favourable fiscal treatment will cover job creation in the south where unemployment is close to 25 per cent.

The unions fought off a wide-scale liberalisation of the labour market. But they accepted the principle of wage differentials in areas of high unemployment.

## Moslem president tells the UN assembly of fears of resumption of conflict unless Serb authorities relent

# Bosnia peace 'hinges on return of refugees'

By Laura Silber at the United Nations in New York

Bosnia's President Alija Izetbegovic yesterday warned that international efforts to usher in new institutions involving all Bosnia's ethnic groups would falter unless refugees were allowed to return home.

In a speech to be delivered last night at the United Nations, Mr Izetbegovic, a Moslem, said the "selective implementation" of the Dayton accords would not cement the peace.

Only a handful of Bosnia's 2m and more refugees have returned to their homes, indicted war criminals remain at large, and Serb and Croat authorities remain their grip over the media - all contrary to the Dayton peace agreement signed last December.

Bosnian Moslem leaders recently made clear that future co-operation with the Dayton accords hinges on Serb authorities allowing the

return of refugees. Otherwise, they say there will be more war.

International envoys are now trying to urge the rival parties, who waged war for Bosnia's partition, to co-operate in the building of joint institutions after more than half the country backed Serb and Croat nationalist parties in Bosnia's first peacetime poll on September 14.

In remarks before his speech to the UN General Assembly, Mr Izetbegovic - who was elected chairman of the country's three-man presidency - said: "A new war would start if Bosnia-Herzegovina fell apart. Dayton was expensive. But partition will cost still more."

Diplomats say the challenge to avoid partition also hinges on Mr Izetbegovic's ability to act as president of Bosnia's divided communities.

The 71-year-old president himself called attention to this challenge. He said he

had written the first half of his speech to the UN as a Bosniak (Moslem); the second as a Bosnian representing the country's Moslems, Serbs and Croats.

In his address to the UN, Germany's foreign minister, Mr Klaus Kinkel, yesterday added his voice to calls for the swift creation of joint institutions, saying the three-man presidency should meet in Sarajevo before the end of September.

But the new presidency - a Moslem, a Serb and a Croat - remains in deadlock over the venue for the first meeting, as the Bosnian Serb candidate so far has refused to go to Sarajevo.

The presidency can meet only after the Organisation for Security and Co-operation in Europe (OSCE), which oversaw the imperfect poll, certifies Bosnia's elections. The OSCE yesterday said the decision would be made by Monday.

The vote count has been plagued by controversy.



An Italian soldier stands guard as rifles and machine guns confiscated by Nato troops from Bosnian Moslems are destroyed by a tank

# French scramble to buy cars before incentives go

By David Owen in Paris

French car registrations this month are likely to be almost double 1995 levels because of a last-minute dash by consumers to take advantage of government incentives that end next week.

The Comité des Constructeurs Français d'Automobiles said yesterday it expected September registrations to total about 210,000 compared with around 115,000 in September 1995 and 172,400 last month. The trade body, whose monthly statistics are the most closely watched gauge of the French car market, said at least half this month's orders were probably linked to the incentive programme.

While it will almost certainly prove short-lived, the

scale of this month's increase will come as a boost to the government which badly needs an improvement in the country's sluggish growth to lift its popularity and underpin its hopes of qualifying for economic and monetary union.

Ministers were rocked this month by the disclosure that the economy contracted more sharply than expected in the second quarter. The surge in car sales, albeit at cut-throat prices, may be interpreted as promising news for the present quarter.

The extent of the upturn may also bolster those arguing either for an extension of the incentive scheme beyond September 30, or its replacement with a new version geared more closely to the value of individual cars.

Prime Minister Alain

Juppé is due to make up his mind on this within the next few days. His cabinet colleagues are split on the issue: Mr Jean Arthuis, the finance minister, is against any extension or new measure; Mr Franck Borotra, industry minister, is understood to support continued assistance.

The French car industry is also divided. Mr Jacques Calvet, head of Peugeot Citroën, favours a bonus that would vary in line with car values. Mr Louis Schweitzer, head of Renault, says it is impossible to devise a bonus that does not advantage compact cars over larger models.

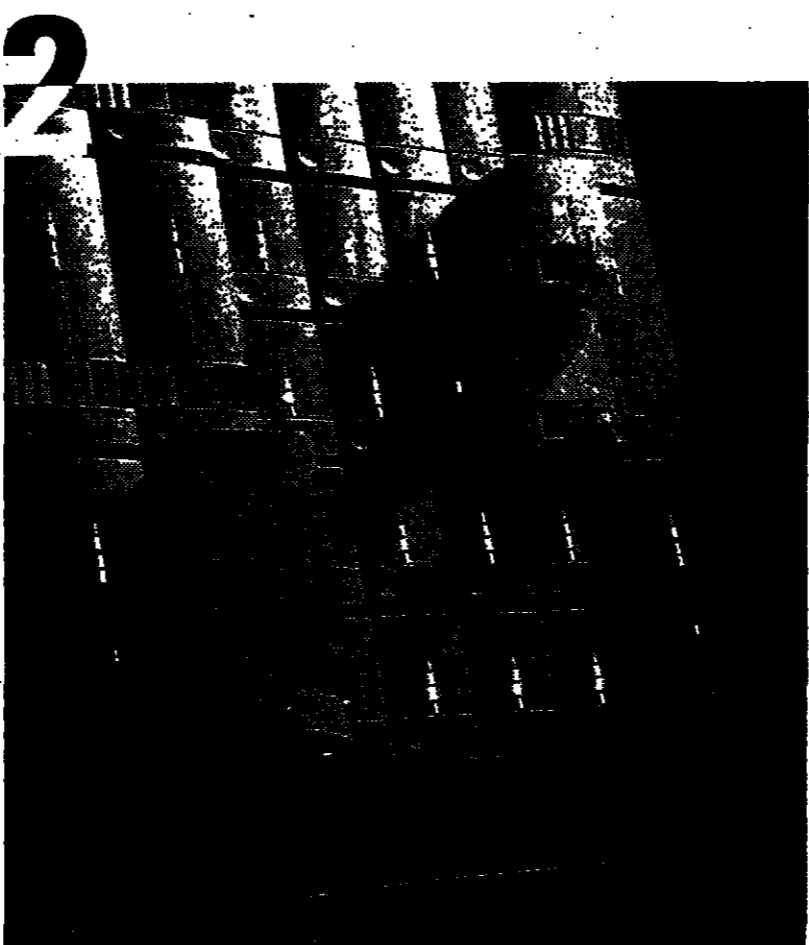
Under the incentive scheme, buyers of new cars are offered a bonus of FF5,000 (\$1,000) to FF7,000 for trading in a vehicle at least eight years old.

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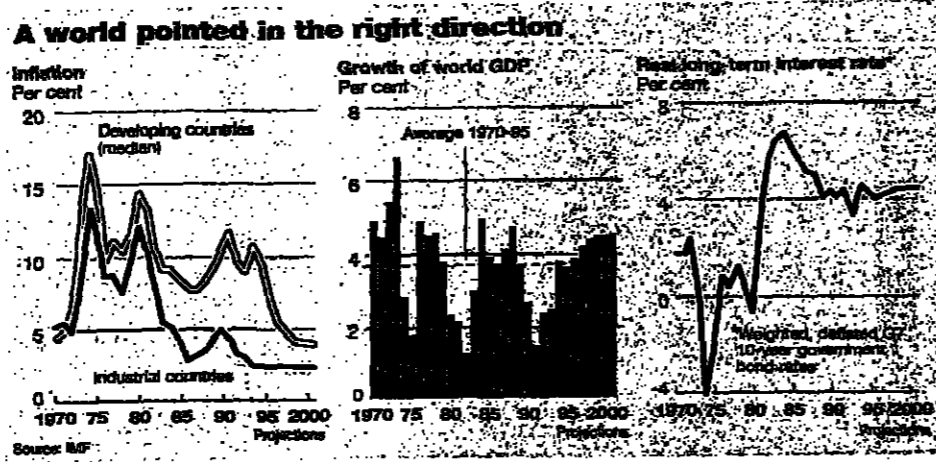
NEWS: INTERNATIONAL

Industrialised countries 2.5% Transition economies 4% to 5% World 4.1%

# Former east bloc lifts the world economy

The world economy's annual growth rate is set to accelerate gradually through the rest of the 1990s, according to the International Monetary Fund's latest World Economic Outlook. World trade growth is expected to slow, meanwhile, but to remain stronger than the rise in output would normally suggest.

Global growth is forecast to pick up to an average annual rate of 4.5 per cent between 1998 and 2001, a significant improvement from the 3.5 to 4 per cent recorded on average over the last quarter-century. This steep improvement in trend growth reflects a sharp rebound in activity in the transition economies of eastern Europe and the former Soviet Union, although this upturn will be vulnerable to setbacks in the process of stabilisation and reform.



Next year the world economy should grow by 4.1 per cent, up from 3.8 per cent in 1996. IMF economists believe. Growth in the developing world should fall slightly to 6.2 per cent, although this rate of increase remains well above the 2.5 per cent which is expected in the industrialised countries for the next few years. Among the Group of Seven (G7) nations, the pace of expansion is expected to accelerate next year in Germany, France, Italy, the UK and Canada, but to decelerate in the US and Japan.

Since its last World Economic Outlook in May, the IMF has downgraded its 1997 growth forecasts for four of the G7 countries. The largest revision is for Germany, where growth next year is expected to come in at 2.4 per cent rather than the 3 per cent forecast in the spring. The IMF forecasts that interest rates may have further to fall in Germany, even though it expects economic activity to continue strengthening over the coming year.

Growth in the European Union as a whole is forecast to accelerate from 1.6 per cent this year to 2.5 per cent in 1997, both rates a fifth of a percentage point less than the IMF pencilled in last May. But Fund economists warned that activity might turn out weaker than expected because governments are cutting their borrowing sharply in an effort to qualify to join the single currency.



Bulgaria bank queue: 'Efforts are needed in most transition countries to put the banking system on a sound footing'

Downward pressure on government borrowing has subdued growth in France, although the IMF argued that by boosting financial market confidence the French government's resolve to cut its deficit had allowed a substantial decline in interest rates - both in absolute terms and relative to Germany. Growth in France is forecast to reach 2.4 per cent next year, although the Fund warned that "a comprehensive programme of fiscal and labour market reform is necessary to create a basis for robust non-inflationary growth over the medium term".

In the case of Japan, the Fund argued that the government should aim for a budget surplus in the medium term to prepare for the costs that would arise with the ageing of its population. But the fiscal consolidation should take place gradually to avoid derailing the recovery. The growth forecast for Japan this year has been revised upward substantially since May to 3.5 per cent, but downgraded for 1997 to 2.7 per cent.

Impressive", the IMF argued. It noted that worries concerning overheating in some Asian economies had been allayed, although "further action may be needed to avoid the emergence of excessive pressures on capacity and to contain external imbalances".

The Fund said that the best performers in the developing world were those countries where government borrowing had been kept in check and public sector activity was mainly geared towards promoting private sector activity. The least successful were those where budget deficits were exacerbated by support for loss-making public enterprises, where there was extensive government regulation and where inflation was poorly controlled.

## Mixed verdict for buy-back facility

By Graham Bowley in London

The use of western official aid to buy back poor countries' commercial debt does not improve their creditworthiness or access to new private-sector finance, a report for the UK's Overseas Development Agency has found.

But commercial debt buy-backs do relieve the burden of debt service costs, it says. The report, published yesterday by London Economics, the UK business consultancy, is the first to study closely the costs and benefits of buying back the debt owed by poor countries to commercial banks.

# Only France and Luxembourg on Maastricht course

By Robert Chote, Economics Editor, in Washington

France and Luxembourg are the only countries on course to meet strictly the four economic performance targets set down in the Maastricht treaty for potential participants in a single European currency, the International Monetary Fund said yesterday.

Together with the UK, they are the only two countries expected to have government debts equivalent to 60 per cent or less of national income next year. Germany's debt to gross domestic product ratio is forecast to rise from 60.8 per cent this year to 61.9 per cent in 1997.

However, as it already seems clear that the debt criterion will be interpreted flexibly, attention has focused instead on the requirement that budget deficits next year be no more than 3 per cent of gross domestic product.

The other criteria specify targets for inflation and long-term interest rates. The Fund's latest World Economic Outlook predicts five EU countries - France, Germany, Austria, Belgium and Sweden - will have budget deficits of exactly 3 per cent of GDP next year. Most economists think that France will have difficulty hitting the 3 per cent deficit goal but the Fund believes the target is within reach as long as economic growth strengthens as it expects.

The Netherlands, Denmark, Finland, Ireland and Luxembourg are all expected to meet the target comfortably but the UK will overshoot with a deficit of 3.3 per cent.

The IMF argues that the pace of economic growth will be slowed in Europe by the effort to restrain government borrowing. Mr Fleming Larsen, its deputy chief economist, said that if growth turned out weaker than expected it would be unwise to tighten the fiscal screw further just to meet the Maastricht timetable.

The Outlook argued that, if growth weakened further, governments should allow the "automatic stabilisers" to take effect, meaning that deficits might rise because of weak tax revenues and higher unemployment support payments. But this option was only open to governments which had won the confidence of financial markets by bearing down on "structural" deficits unrelated to the state of the economic cycle.

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## New vaccines may save lives of 8m children

By Frances Williams in Geneva

Expensive new vaccines coming on to the market over the next five to 15 years could save the lives of up to 8m children annually but risk being denied to children in poor countries for lack of funds.

In a report published yesterday, the World Health Organisation and the United Nations Children's Fund said global immunisation programmes had been a remarkable success. Under the expanded programme on immunisation (EPI), 80 per cent of the world's children have been immunised against six common childhood killers, saving 3m lives a year.

Dr Ralph Henderson, assistant WHO director general, described the programme as "one of the great public health triumphs of our time". Greater achievements were possible, he said.

The crippling disease of polio could be eradicated by the year 2000, eventually saving governments more than \$1.5bn a year in immunisation costs. New and better vaccines against diarrhoeal diseases, acute respiratory infections and malaria could save the lives of a further 8m children each year.

However, the new generation vaccines, often genetically engineered, are vastly more expensive because of high research and development costs.

Immunising a child with all six original EPI vaccines costs about \$1 to which must be added \$14 in delivery costs. Experience with the hepatitis B vaccine, the world's first genetically engineered vaccine, suggests each new vaccine will cost several times as much.

New vaccines already on the market, including those against hepatitis B and yellow fever, are still not available in many of the countries that need them.

The report expressed concern new vaccines were being tailored to diseases occurring in rich nations, which may not be suitable for children in developing countries who may suffer from different and more virulent strains of the disease.

"State of the world's vaccines and immunisation. Available from WHO, Global Programme for Vaccines and Immunisation, CH-1211 Geneva 27 or on the Internet at [http://www.who.ch/programm/esigpo/ipo\\_home.htm](http://www.who.ch/programm/esigpo/ipo_home.htm)

Using official aid to buy back these debts had therefore led in several cases to large cash-flow benefits for these countries.

The report concludes that, on balance, the cash-flow benefits are sufficient to make buy-backs "an attractive aid project".

It states: "We find that, typically, a commercial debt buy-back has a marginal effect on creditworthiness and does not improve the African private sector's access to international finance."

It also found that commercial creditors often used such schemes as an opportunity to free themselves of their ties to poor countries, rather than extend new loans.

## Fears on debt service costs

By Graham Bowley

Some heavily indebted poor countries will pay more debt service costs than at present even after they receive the benefits of debt relief proposals being considered by the World Bank and the International Monetary Fund.

A special report drawn up by the Mozambique ministry of finance suggests that Mozambique, one of the world's most indebted countries, will pay about three times as much in terms of debt service costs in 2004 when it would qualify for the new proposals.

## Step closer to accounts unity

By Jim Kelly, Accountancy Correspondent

The body working to produce a set of accounting standards for use on the world's leading stock markets yesterday cleared a serious obstacle to the success of the project.

national standard setters have their own interpretation bodies.

Interpretations given by the new body will have to be confirmed by the board - an important control for board members - but they will not be able to debate them.

The decision will be seen as significant because it will help allay fears that the project to harmonise accounts on a global basis would be undermined by different national interpretations.

Sir Bryan said the board was moving ahead swiftly with its programme to put together a set of core standards for endorsement by IASB - the organisation for the world's securities regulators.

The agreement holds out the prospect of big companies being able to use one set of accounts to raise capital across borders.

The meeting had approved a final standard on income tax - one of the most difficult issues it faces.

مكتبة العربي

# Beijing buries the hatchet with Bonn



German foreign minister Klaus Kinkel met Qian Qichen at UN

By Tony Walker in Beijing and Bruce Jacques in Sydney

China has signalled an end to its row with Germany over Tibet by inviting the German president for a state visit and reviving an invitation to the foreign minister.

President Roman Herzog to visit China... and welcomed Foreign Minister Kinkel to visit China beforehand, the official Xinhua news agency reported.

tionally and countering demand for Tibetan independence but it appears anxious not to allow the issue to sour relations on too many fronts.

partnership, but the two sides moved fairly quickly to stop the argument harming the relationship. A Chinese official said at the time that as long as Germany took "concrete and effective" measures to make amends, relations would not be allowed to deteriorate further.

### ASIA-PACIFIC NEWS DIGEST

## US airman in Japan quizzed

A US airman stationed at Kadena Air Base in Okinawa, southern Japan, is being questioned over a complaint by a Japanese woman that she was raped in the base compound, US air force officials said yesterday.

## Tokyo agrees finance ministry reform

By Gerard Baker in Tokyo

Japan's all-powerful finance ministry could be about to lose one of its principal functions, if a plan approved by the coalition government is enacted in the course of the next year.

## Spy row further sours S Korea-US ties

By John Burton in Seoul and Jurek Martin in Washington

A spy row yesterday threatened further to strain ties between the US and Seoul as the two countries appeared to disagree over the appropriate response to the recent intrusion of a North Korean submarine into South Korean waters.

spy for South Korea, according to a letter to the attaché and dated in January which it found in his house. His work computer appeared to have been placed under electronic surveillance as long ago as last May, which may suggest that the documents were not hyper-sensitive.

Still, the arrest is likely to embarrass South Korea as it presses the US to adopt a tough stance against North Korea in response to the submarine intrusion.

the US Secretary of State, said the implementation of the North Korean nuclear agreement should continue despite the submarine intrusion because it serves the interests of all countries in the north-east Asian region.

The US Defence Department said it did not anticipate a decision on resuming Team Spirit "in the near term."

## Ex-judge eyes top HK post

A possible new candidate for Hong Kong's top post in the post-colonial government emerged yesterday when Mr Arthur Garcia, a former High Court judge, told government radio he was considering running for the leadership.

Chinese are eating more protein, with a much improved breakfast... and are getting bigger because of a better diet, according to a survey published by the official Xinhua news agency.

Big improvements in Chinese dietary habits have clear implications for exporters of food to China. The Chinese appetite for dairy products and other forms of protein is growing rapidly, benefiting exporting countries such as Australia and New Zealand.

## Singapore Internet fine

A Singapore man has been fined \$861,000 (US\$493,000) for downloading sex films from the Internet, the first such case in a country embarking on censoring the net, the Straits Times said yesterday.

## Sharif steps up pressure on Bhutto

By Farhan Bokhari and Mark Nicholson in Lahore

Pakistan's president and the leader of the opposition have unexpectedly agreed to meet today for the first time during the present three-year-old parliament, in a move likely to increase political pressure on Ms Benazir Bhutto, the prime minister.

leader of the Pakistan Muslim League, follows two interventions by Mr Leghari since the killing. Both of these have been welcomed by the opposition.

Both moves indicate increasing differences between the president and the prime minister who came from the same party, the Pakistan People's party (PPP).

Bhutto delivered resignations of all her MPs from the parliament to strengthen the hand of the president who later on the same day sacked Mr Sharif as prime minister.

On two issues, he has met our demands... In addition to its political problems, the Bhutto government faces growing financial difficulties because of the suspension of tranches of a \$600m IMF loan.

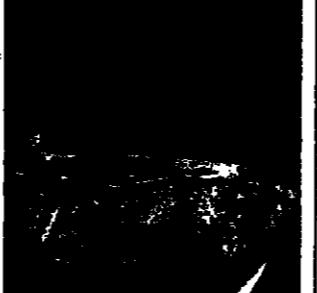
## The rise and rapid demise of Megawati

Indonesia's former opposition leader has been roundly removed, writes Manuela Saragosa

Less than two months ago she appeared on the brink of mounting the most serious challenge ever to President Suharto's 30-year authoritarian rule of Indonesia. Today Ms Megawati Sukarnoputri's closest allies are admitting that if she is ever again to be a force in Indonesian politics, it is unlikely to be while Mr Suharto is in power.



Megawati lost her legal platform and confrontation is not her style



Suharto: characteristically comprehensive in dealing with his opponents

This could explain why the daughter of the widely revered founding president of the country is unlikely even to appear at the Jakarta court hearing today in which she is claiming that her removal as Indonesia's equivalent of leader of the opposition was illegal.

to do with Ms Megawati's reluctance to engage in confrontation with the government but a great deal with fear. The 27-year-old leader of a small party accused of masterminding the July riots is being charged with subversion, a crime punishable by death in Indonesia.

The Liberal Democrats led by Mr Ryutaro Hashimoto, the prime minister, who form the largest party and have traditionally enjoyed close links with finance ministry bureaucrats, were initially reluctant to countenance any measure that would reduce the ministry's power.

For the time being, Mr Suharto appears to have achieved his goal of removing Ms Megawati from the political arena and quashed any potential for real opposition.

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NEWS: THE AMERICAS

US unveils index-linked bond issue

By Jurek Martin in Washington
President Bill Clinton yesterday announced the details of an index-linked government bond issue designed to appeal to middle class investors.

would be offered, but that the amount would still run into "the billions of dollars".
Interest rates on the bonds will be lower than commanded by the regular 10-year issues, but the administration contends, will be equally attractive because of their guard against inflation.

Dole faces Ohio roadblock
The 'average' state is in upbeat mood, says Patti Waldmeir

Ohio is famous for being average. But a recent research effort to discover the average in an American state, Ohio, has found the political mean. Since the turn of the century, Ohio has sat stolidly at the centre of the American political spectrum and refused to budge.

That has less to do with the facts of economic growth than with perceptions. Until recently, growth was strong but voters simply refused to believe it. President Clinton's claims of economic achievement fell largely on deaf ears.

Whatever the reasons for the delay, economic perceptions have closed the gap with reality at exactly the moment most propitious for Mr Clinton. In Ohio, that gives the incumbent a formidable advantage - even among voters who harbour serious doubts about his character.

George Voinovich, has missed several recent appearances with the candidate. The best that Mr Taft can say is that the state's Republican Congressmen, who are also up for re-election, "are not yet running away from Bob Dole" - though they might do so, if they believe he will lose.

AMERICAN NEWS DIGEST
Further cuts in Amtrak services

The dwindling US passenger train network will shrink still further in November following a decision yesterday by Amtrak, the national passenger train operator, to approve sweeping cuts to services.

Mr Steven Wallman, a commissioner at the Securities and Exchange Commission, yesterday called for US equity markets to trade in "plain numbers" - or dollars and cents - instead of fractions, claiming that the shift to decimalisation would result in lower dealing costs for investors.

Ortiz plans public investment boost for Mexico

By Stephen Fidler and Leslie Crawford in Mexico City
Mr Guillermo Ortiz, Mexico's finance minister, says he plans to run a small budget deficit in 1997 to allow for more spending on public works and to speed the economic growth rate to above 4 per cent next year.

cent in real terms next year to pay for an important expansion in state oil refineries, and the building of power plants and toll roads.

during the country's economic crisis. Tax receipts have fallen by almost two percentage points of gross domestic product - about \$5bn - since 1994.

which workers will hold individual retirement accounts managed by personal accident insurance.

increase demand for imports and open a current account deficit which should not exceed 2 per cent of GDP, the minister said.

Argentina \$1.7bn in lost production, according to President Carlos Menem, who said industrial unions would not dissuade him from deepening the current economic reforms.

NEWS: WORLD TRADE

Tokyo acts to defuse insurance row

By Michiyo Nakamoto in Tokyo
Tokyo yesterday moved to avert a collision with the US in a dispute over Japan's insurance market, the world's second largest.

cancer, nursing care, personal accident and other products that fall in between life and non-life insurance products and represents just 5 per cent of the Japanese market.

the entry of Japanese companies into the sector follows US warnings it would "take appropriate action" if Japanese entry into the sector went ahead.

change" in the third sector until the primary sectors of life and non-life insurance were deregulated and foreign insurance providers had been given a reasonable period to compete in those markets.

mented and that the entry of the subsidiaries of life and non-life insurers into the third sector does not constitute "radical change".

BA may face curbs on link-up

By Michael Skapinker, Aerospace Correspondent
The UK Office of Fair Trading is believed to be preparing to recommend that conditions be attached to the proposed alliance between British Airways and American Airlines.

WORLD TRADE NEWS DIGEST
Taipei pressed on pricing

The US is pressing Taiwan to settle a dispute over pricing of imported medical instruments by threatening to list it as an "unfair trader" by September 30. The move would allow a further year for negotiations but, if no settlement were reached, the US could impose trade sanctions on Taiwan under section 301 of its trade law.

Guy de Jonquieres and Nancy Dunne on a bitter US-EU dispute
Communication gap in IT talks

When the US and EU agreed late last year to seek a global free trade deal for information technology products, they hailed the initiative as a boost to transatlantic harmony. But since then, it has dissolved into bitter squabbling, further straining a relationship it was supposed to help repair.

Worldwide semiconductor sales
Sales (\$bn)
1990 1991 1992 1993 1994 1995 1996
Total world sales (\$bn)
1990 1991 1992 1993 1994 1995 1996
Source: Dataquest

the EU agree to phase out its chip tariffs before it can join their alliance.

Whether Sir Leon's compromise offer will be enough to avert the log-jam is unclear. Washington has responded cautiously, saying it was still unsure of Brussels' resolve. The US says it has made much more progress in talks on the planned IT agreement with Asian countries, such as Korea and Taiwan.

out of the arrangement so they can continue to hog foreign chip sales in Japan.

Perkins reorganises in US
Perkins, one of the world's biggest diesel engines companies, is setting up its own distribution business in North America, ending an eight-year alliance with Detroit Diesel, a US engine company partly owned by Mercedes-Benz.

UK strengthens Filipino ties
The formation of a Philippine-British Business Council was announced in Manila yesterday by Lord Fraser, British minister of state for trade and industry. He said he hoped the council would improve contacts between businessmen, would raise the level of trade and investments between the UK and the Philippines.

Bonn moves on procurement
The German cabinet agreed yesterday that public procurement decisions could be challenged in court, so lifting a threat of sanctions against German companies in the US. The decision followed pressure from the European Commission and the US to increase the transparency of procedures covering contracts awarded by federal, state and local authorities and worth about DM400bn (\$268.7bn) a year. Companies complained they had no access to the courts to find a settlement.

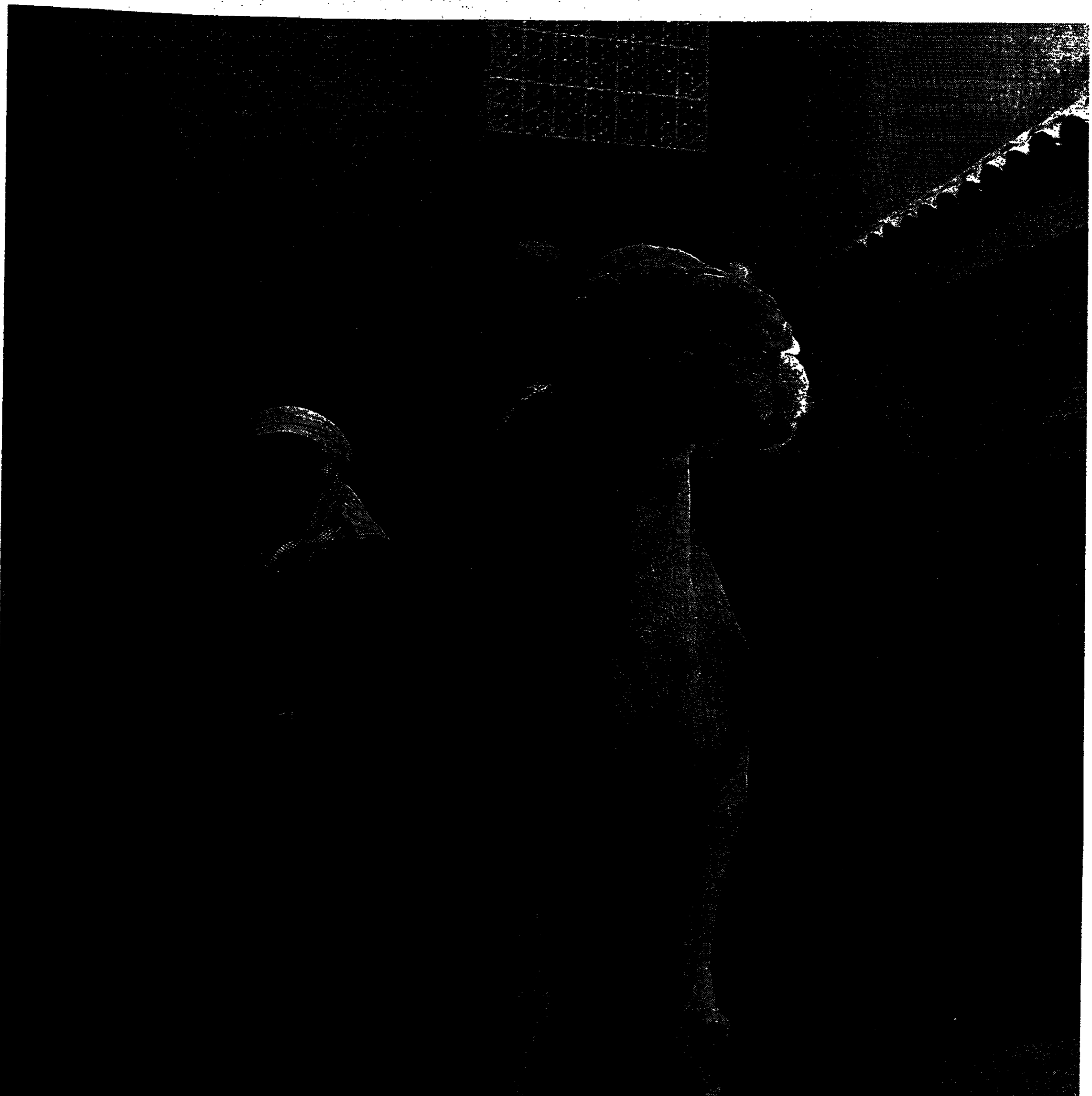
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ARTS

Cinema/Nigel Andrews

Perplexity sur la mer

Watching Eric Rohmer's A Summer's Tale, you realise what is wrong with every film not by Eric Rohmer...

- A SUMMER'S TALE Eric Rohmer
JANE EYRE Franco Zeffirelli
LAST MAN STANDING Walter Hill
MULTIPLICITY Harold Ramis
DON'T FORGET YOU'RE GOING TO DIE Xavier Beauvois

An eye-feast of bleakly beautiful crags and horizons - and what talk. Rohmer's casual style makes you believe you are hearing nothing while it tunes you into the wittiest ironies...

Juggling three girls in a climax of perfect comic desperation - he has promised them all a trip to the same island on the same day...



Platonic romance: Amanda Langlet and Melvil Poupaud in Eric Rohmer's blissful 'A Summer's Tale'

mutations of Brontë's heroine, and the inappropriate-ness of Hurt. Isn't Mr Rochester supposed to be a forbidding, even somewhat ugly gentleman...

Very stroboscopic: the vulnerable viewer could well develop the equivalent of Nintendo epilepsy. Every few seconds a new villain perforated, a new wrongly-matching chord sounded on composer Ry Cooder's guitar...

make movies that held the attention while stretching the mind, or at least the senses. More recently he seems caught in some nightmare borderland between sci-fi and westerns...

There wearing haute couture boiler suits and pink sequined miner's helmets. Had they been hired to hack some PR glitter from the rockface of a film grimly received in America? No real need...

which one frame swarms with several overlapping Keatons. Film critics should send their most junior clones to the French film Don't Forget You Have To Die...

Theatre/David Murray

Farcical fraud

The new farce - well, new-ish, but certainly farcical - at the Whitehall Theatre is by Michael Cooney...

many fictitious dependants when they are overcome by fictitious disabilities. None of this is developed, nor remotely plausible or funny...



Falling in a sea of inconsistencies: Anita Graham, Nick Wilton and Frank Thornton in Michael Cooney's 'Cash on Delivery'

evaporates. We are watching nothing but hoary routines. Only inspired, physically expressive comedian-principals could make it seem to work...

ing Dr Chapman (something to do with marital guidance), and John Hart Dyke's unctuously respectful undertaker...

pushes a political programme along ('Kill well-fare!') on an old-style vehicle which is too timelessly familiar to be timely or funny...

Theatre/Ian Shuttleworth

Comprehensively bugged

Bearing no relation to the 1976 cult horror movie of the same name about arsonist cockroaches from hell, Tracey Lettis's second play Bug touches at times upon each and every meaning of the word 'bug'...

of paranoia both spontaneous and cocaine-induced, no hope white-trashery, domestic violence, the horrors of co-dependence and shared delusions, and liberal doses of Psycho: Peter gives off a Norman Bates-ish odour from the start...

to the hypothesis, the primary sense of the spectator is one of uncomprehending otherness. The smudged lines and flypapers, wife-beating and self-mutilation, right through to the inexorable despairing conclusion...

INTERNATIONAL ARTS GUIDE

- AMSTERDAM: Concertgebouw Tel: 31-20-6718345
BERLIN: Philharmonie &
COLOGNE: Concertgebouw Tel: 49-221-2218240
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PARIS: Centre Georges Pompidou Tel: 33-1-44 78 12 33
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TORONTO: O'Keefe Centre for the Performing Arts Tel: 1-416-393-7474

Kammernusiksal Tel: 49-30-2614383
Rundfunkchor Berlin: with conductor Robin Gritton perform works by Reger, Brahms and Beethoven; 7pm; Sep 28

DANCE Staatsoper Unter den Linden Tel: 49-30-20354438
The Sleeping Beauty: a choreography by Rudolf Nureyev after Petipa to music by Tchaikovsky...

OPERA Komische Oper Tel: 49-30-202800
Lucia di Lammermoor: by Donizetti. Conducted by Yakov Kreizberg and performed by the Komische Oper...

OPERA Het Muziektheater Tel: 31-20-5518117
Elektra: by R. Strauss. Conducted by Hartmut Haenchen and performed by De Nederlandse Opera...

11am; Sep 29
COPENHAGEN CONCERT Tivoli Concert Hall Tel: 45-33 15 10 01
Det Kongelige Kapel: with conductor Manfred Honeck and soprano Inga Nielsen perform works by Mozart, Strauss and Brahms; 8pm; Sep 27

DUBLIN CONCERT National Concert Hall - Ceolras Náisiúnta Tel: 353-1-6711888
City of Cork Male Voice Choir and the Kinsale Opera Chorus: with conductor Frank Buckley, tenor Gabriel Sadé, soprano Orly Boylan, baritone Igor Mirozov, pianist Jimmy Vaughan and narrator David McInerney perform works by Verdi, Bizet, Bellini and Puccini; 8pm; Sep 28

ESSEN DANCE Aalto Musiktheater Tel: 49-201-81220
Eugene Onegin: a choreography by John Cranko to music by Tchaikovsky, performed by the Theater und Philharmonie Essen...

HANOVER OPERA Opernhaus Tel: 49-511-1686161
The Barbered Bride: by Smetana. Conducted by Gregor

Böhl, performed by the Hannover Soloists include Xenia Maria Mann, Camilla Nyland and Leonard Delany; 7.30pm; Sep 27

HELSENKI OPERA Opera House Tel: 358-0-403021
Insect Life: by Kalevi Aho (world premiere). Conducted by Pentti Pekkonen and performed by The Finnish National Opera...

LONDON CONCERT Barbican Hall Tel: 44-171-6384141
London Symphony Orchestra: with conductor Richard Hickox, soprano Yvonne Kenny, tenor Philip Langridge, baritone Stephen Roberts and the London Symphony Chorus perform Dyson's The Canterbury Pilgrims; 7.30pm; Sep 29

Wilmora Hall Tel: 44-171-6352141
Anthony Marwood and Susan

Tones: the violinist and pianist perform works by Ravel, Dvořák and Bartók; 7.30pm; Sep 27

MADRID EXHIBITION Fundacion Cultural Mapfre Vida Tel: 34-1-5811628
50 Años de Fotografía Española en la Colección de la Real Sociedad Fotográfica (1900-1950): exhibition giving an overview of Spanish photography in the first half of this century...

PARIS EXHIBITION Centre Georges Pompidou Tel: 33-1-44 78 12 33
Dessins contemporains du Musée de Bâle: this exhibition shows a collection of contemporary drawings, collected by Dieter Koepplin, the curator of the Kunstmuseum Basel; to Sep 30

OPERA Théâtre du Châtelet Tel: 33-1 42 33 00 00
The Rake's Progress: by Stravinsky. Conducted by Esa-Pekka Salonen and performed by the Los Angeles Philharmonic and the London Sinfonietta Voices...

7.30pm; Sep 28, 30
STUTTGART EXHIBITION Staatsgalerie Stuttgart Tel: 49-711-2124050
Die Stiftung Froelich: exhibition featuring German art from the collection of Josef and Anna Froelich, which includes 308 paintings, prints, photographs, sculptures and installations...

THE HAGUE EXHIBITION Het Paleis Tel: 31-70-3381120
UR Koninklijk Beziit: exhibition featuring a selection of works from the collection of the Dutch Royal Family; from Sep 28 to Dec 1

TORONTO OPERA O'Keefe Centre for the Performing Arts Tel: 1-416-393-7474
Salome: by R. Strauss. Conducted by Richard Bradshaw, performed by the Canadian Opera Company...

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18.00 European Money Wheel Financial Times Business Tonight

COMMENT & ANALYSIS

Economic Viewpoint • Samuel Brittan

The euro will surely come

Even if the UK decides to remain outside European monetary union, the new euro could become a parallel currency alongside sterling



The Bank of England has taken trouble to see that British financial institutions are fully prepared for European economic and monetary union by 1999. Irrespective of whether the UK government decides to participate, the Bank is concerned that institutions and businesses should be equipped to use the euro, the proposed currency of Emu members. After all these efforts some businesses may be tempted to use the euro for some transactions inside the UK. This could happen even if the UK exercises its option to stay outside Emu. Eventually the euro could circulate in the UK and even come to displace sterling as principal currency. Major financial institutions already prepare investment valuations for foreign customers in their own currencies; and from here it will be a short step to providing them in euros. The innovation - which Coutts is considering, along with a number of other institutions - would be to offer such valuations to domestic clients. The use of euros for actual domestic payments would be yet another step. Indeed the circulation inside the UK of the euro as a parallel currency along with sterling is entirely possible. Many Latin American countries have de facto parallel currencies. The US dollar is used not only for international trade but for other large and long-term contracts; national currencies are confined as much as possible to the small change of retail transactions. In many parts of the former Soviet Union both dollars and D-Marks are so used. But even outside these unstable areas, alternative currencies can be found - especially in frontier areas. In Geneva, French as well as Swiss francs are generally acceptable. In the railway station of the Austrian

town of Salzburg, luggage trolleys can be freed with D-Marks or Austrian shillings. In the Channel Islands, many shops will accept French francs. They will be even more likely to accept the euro. (So-called euro coins, with a gold content, have already been minted in the Isle of Man, but they have been treated mainly as collectors' items.) When the euro comes into general circulation, which is planned for 2002, British residents will need to take euros when travelling around the continent. In time British executives might even want some of their salaries paid in that currency. None of this will happen overnight. But increasing familiarity is bound to encourage its use so long as the European currency really is run on similar lines to the German D-Mark. Mr Tristan Garel-Jones, a former Conservative minister, wants to encourage this process. He has accordingly proposed that if the euro gains the confidence of the world currency markets, it should then be declared legal tender in the UK side by side with sterling.

In fact legal tender is largely an archaic concept. It had historical importance when currency was based on precious metals and the Bank of England was struggling to encourage the acceptance of its notes as substitutes. But what matters for the spread of a currency is its acceptability rather than whether or not it is accorded that status. Today anyone can make a contract with anyone else with any agreed means of settlement: sterling, gold, dollars or a currency basket. It can be made in terms of yards of copper or even cowrie shells. It is the agreement of the parties concerned that matters. Legal tender only comes into question if a contract has been denominated in sterling and there is a dispute about whether it has been settled or not. If Bank of England notes or coins are offered, that is regarded by the courts in England and Wales as discharge of the debt. In theory a cheque or any other transfer from a bank account is not valid. But it is unthinkable that creditors should demand the settlement of large sums in barrels of notes or that the courts will en-

force them to do so. What is more important is the idea of parallel currencies. In the inflationary 1970s the economist Friedrich Hayek so deplored the likelihood of governments stopping inflation that he proposed competition in currencies in the hope that the best ones would drive out the worst. His original idea was that private enterprise currencies would compete with official ones. This aspect of his idea never really caught on. But well before the Delors Committee of 1988, which laid the basis for monetary union, there were many plans for introducing another currency into the European Community which would compete with national currencies and might eventually displace them. The UK government picked up the idea of competition among existing currencies in the late 1980s. The background was that at the Madrid conference of 1988 Margaret Thatcher astonished her own ministers by saying her government would produce an alternative route to monetary union to that proposed by Delors. Her advisers racked their brains for some way of fulfilling this undertaking. Nigel Lawson, the then Chancellor, had read Hayek's original ideas and proposed competition among existing European currencies. UK Treasury officials did not, however, think currency competition was very likely in view of the strong popular attachment to national currencies. They thus tried to substitute competition between monetary policies. But from the European point of view, the problem was the idea was not backed by enough hard proposals - precisely because many European citizens could already use whatever cur-

rency they desired. The possibility of achieving more impact by abolishing the status of legal tender was investigated. But the Bank of England successfully blocked that, even though it was the first to argue the concept made little difference. The next British idea was based on the European Currency Unit or Ecu. This has existed since the beginning of the European Monetary System in 1979 as a simple basket of currencies. John Major proposed to transform this into a "hard Ecu". The proposal brought to mind a remark by Bismarck about the Schleswig-Holstein problem: only three people ever understood it; and they had all forgotten or died. Similar remarks would apply to the "hard Ecu". But this did not prevent Conservative ministers and MPs from trying to paper over their own divisions by saying "We favour the hard Ecu", without having the faintest idea what they meant. In any case the idea found no support among EU members. It is now the euro or nothing. It would be wrong to pretend that the gradual voluntary spread of the euro could be anything other than second or third best. Leaving the euro to voluntary adoption would still mean the UK would be confined to an outer circle outside the main centre of European decisions. It might provide an excuse to postpone giving the Bank of England independence, and its spread would be unlikely to be quick enough to prevent governments indulging in inflationary temptation. But something is better than nothing; and it will be amusing to see the Eurosceptics discovering that, even if the government exercises its opt-out from Emu, they will not have seen the end of the European currency, but only its beginning.



BEFORE THE DAWN. By Gerry Adams William Heinemann, 346 pages, £17.99

Ireland's mascot for the gullible

During the past two years Gerry Adams has dominated the tragic politics of Northern Ireland. Through and beyond the IRA's ceasefire, the bearded president of Sinn Féin has filled the television screens and front pages. He has shaken the hand of President Bill Clinton. He has become a mascot for the gullible glitterati of Hollywood. Above all, he has stirred admiration and bitter disappointment in the hearts of genuine Irish nationalists. I count myself among those who decided early in what was then the Irish peace process that Mr Adams should be given the benefit of the doubt. We all knew his background as one of the IRA's most ruthless commanders. But 3,000 people had died during 25 years of mindless mayhem. If Mr Adams could deliver peace, then give him a chance. So politicians, officials and commentators colluded in the fiction that the IRA and Sinn Féin were separate, the one committed to the bomb and the bullet, the other the ballot box. The patent contradiction - Mr Adams could deliver peace only if the two organisations were in fact one - was quietly ignored. The British and Irish officials who talked (negotiated was never quite the right word) with Mr Adams over many hours during the ceasefire were mostly convinced he wanted an end to the violence. They were not quite sure why. Some said it was the wearied sobriety which comes to most of us in middle age. Others that he had genuinely reached the conclusion that the British would never be driven out by force. He must have been influenced too by the terrorists on the other side, the so-called loyalists. Their random brutality was costing the Catholic community dear. It is a fair bet that Mr Adams would still prefer peace, probably for a combination of those reasons. But once the ceasefire exploded in the bombing of London's Canary Wharf earlier this year, the president of Sinn Féin made his choice. Perhaps it was fear, perhaps cold calculation. But while Mr Adams expressed "regret", he refused to condemn the IRA. If the ceasefire had broken down it was John Major's fault. Those who detonated tonnes of lethal explosive in the streets of Britain's cities were blameless. Suddenly, though, Mr Adams was not quite such a hero. We saw him wriggle in interviews when asked what purpose was served by blowing up innocent bystanders. The White House and the Dublin government closed their doors. The man of peace had become again the public face of the men of violence. We should not be surprised, then, that Mr Adams has chosen to publish his autobiography. He needs to win back sympathy, particularly in the US. The bloody reality of smashed bodies must be replaced by the sepia-tinted romanticism of Ireland's struggle against the oppressor. This is a bad and depressing book. Bad in its writing, in its analysis and in its culpable omissions. Depressing in that it shows how firmly even the progressives in the Republican movement remain wedded to an outdated and barren analysis of the conflict. There is one obstacle to a united Ireland - the insistence of the peaceful majority in the north on remaining part of the UK. But in Mr Adams's mind, there is nothing to blame but British imperialism. There are interesting points. Once you're past the mawkish sentimentality with which Mr Adams evokes an impoverished childhood in Belfast's Division Park - "we got a bath every Saturday night. By the time the last one got in there was a scum mark around the side of the bath" - there is a much better description of the birth of the Catholic civil rights movement in the 1960s. You do not have to be an ally of Mr Adams to admit that the mass sectarianism with which unionists riah Northern Ireland after partition was a shameful episode in British history. In a curious way the gruesome account of the hunger strikes in 1981 is also moving. That 10 young men could starve themselves to death in protest at their prison conditions was testimony to an awesome sense of injustice. But elsewhere, Mr Adams tells us little. Save for a nasty, fictional account of the murder of a British soldier, there is little insight into his role in the IRA. Nor is there anything but the briefest reference to the process which led to the ceasefire. Compassion is selective, reserved for the "volunteers" killed by the British and careless of the countless innocent victims of the IRA. Doubtless, those who want to be convinced by this version of events. And let us hope the author continues to argue within the Republican movement for peace. But do not be conned. Mr Adams has so far shown himself a small man. Before the Dawn is available from FT Bookshop by ringing. Free Call 0500 415 415 (UK) or +44 181 964 1251 (outside the UK). Free p&p in UK

These days, you can't achieve global success without the right connections. As the world gets smaller, every company has to think bigger. From the birth of SABIC, we recognised the value of forming alliances with multinational companies across the spectrum of our business. Twenty years on, our partnerships read like a Who's Who of global players: Mitsubishi, Shell, Hochtief, Colson, Mobil, Exxon and the LG Group, to name but a few. Aren't some of those names our competitors? Quite right. But, given the scale of our ambitions, we're always prepared to forge the right connections to achieve success. If your ambitions match ours, we'd love to hear from you. SABIC 20th Anniversary 1996

TO THE EDITOR, Financial Times, London SE1 9HT. Letters may be filed to +44 31 773 5388 (please set out your address). Letters are also available on the FT web site, http://www.ft.com. Letters should be typed in the main international languages.

### Depressing signal of influence in world trade

From Mr Terry Wynn MEP. Sir, The US government is doing it again - using its economic largesse as a weapon in international trade, only this time the victims are poor Caribbean island states. I refer to the current World Trade Organisation negotiations on the fixture of the EU's banana import regime. For years the EU has offered preferential access to its markets for Caribbean banana producers, who would otherwise be priced out of the market by the so-called Dollar Banana Companies. These multinationals (Dole, Del Monte and Chiquita) may indeed sell South American bananas, but these are plantation farm bananas, cultivated for US-owned companies, where profits made go into US pockets and taxes go to the US government. The US, not a country known for banana production, has now brought a complaint against the EU's unique arrangement with these Caribbean states, claiming that it directly contravenes WTO rulings on free market access. What's more, pressure from the US government has resulted in the exclusion of Caribbean representatives from the WTO hearings on the subject. This sends a clear and depressing signal that would seem to say that not only can the WTO be manipulated by its powerful members at the expense of its smallest, but that big business can truly influence elected governments. A case of David versus Goliath? But in this instance David doesn't even stand a chance. Terry Wynn, European Parliament, Rue Belliard 97-113, 1047 Brussels, Belgium

### Worth is not so simplistic

From Prof Alec Reed. Sir, Peter Oppenheimer (Letters, September 19) suggests that to be worth their pay packets British executives ought to be (a) technically qualified in relation to the industry in which they work and (b) able to speak a foreign language. Unfortunately, commercial success cannot be based on such a simplistic formula. The qualities required for effective commercial leadership are hard to define and even harder to find. What is certain is that they are in very short supply. That is why companies pay what he describes as telephone-number salaries to top executives. Alec Reed, chairman, Reed Executive, professor of Innovation, Royal Holloway University of London, Egham, Surrey, UK

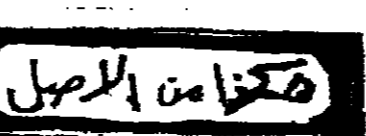
### Lithuania SE largest in the Baltics, for now

From Mr Rimantas Basila. Sir, In your article "Caution pays off for Estonia" (September 2) it was stated: "But the caution paid off, making Tallinn the largest exchange in the Baltics from day one. It is capitalised at \$250m - small, yet dwarfing Lithuania's and Latvia's - and appears destined for a steady rise into the autumn." We do not argue that Tallinn stock exchange might become the largest stock exchange in the Baltics in the future. However, at present the market capitalisation of Lithuania's national stock exchange is \$665.5m, which far exceeds the figure produced for Tallinn stock exchange. Rimantas Basila, general director, chairman of the board, National Stock Exchange of Lithuania, Ukmerges g. 41, 2600 Vilnius, Lithuania

### Economics do not justify cost of owning executive jets

From Mr Frank C. Wilson. Sir, I refer to your article "No wait at the gate" (September 2) about executive jets. Sadly, aircraft manufacturers and executives do not want their employees and shareholders to know the cost of these aircraft. The cost cited of \$85m is enough to build a factory to produce products and services. The purpose of manufacturing is to build a measurable, tangible item. So when the executives buy these aircraft, they are destroying the opportunity to build production capacity. Aircraft manufacturers like to give "operating cost" rather than total cost. Total cost per flying hour will approach \$10,000. A textile employee in the US, including benefits, costs about \$25,000 annually for 1,680 hours worked. Every time our executives fly in these high-cost jets for two and a half hours, one employee must be eliminated to meet the cost - or 240 employees per year, to keep them flying. And how many times have large portions of a company's management been lost in a company aircraft accident? Yes - managers sometimes require an aircraft; but they should be chartered, not owned. Frank C. Wilson, president, Frank C. Wilson International Management, PO Box 1213, Gainesville, Georgia 30603-1213, US

THE POWER TO PROVIDE



COMMENT & ANALYSIS

The FT Interview · Robert Rubin



Player of the trump card

As the US economy continues to expand, the Treasury secretary tells Michael Prowse it is not just a matter of good timing

By a curious twist of fate, a multi-millionaire from Wall Street has become the most successful... Questions are still raised about the soundness of US foreign policy...

It's a very troubling issue. The difficulty, he suggests, lies in finding a lever that can influence what is "largely a cultural phenomenon"...

But the manoeuvre is deemed a success in Washington: Mexico's economy is improving and Treasury loans have been repaid ahead of schedule...

FINANCIAL TIMES

Number One Southwark Bridge, London SE1 9HL. Tel: +44 171-873 3000 Telex: 922186 Fax: +44 171-407 5700 Thursday September 26 1996

A banking black hole

There was a whiff of theatrics about yesterday's announcement that the European Commission had approved FF3.9bn (\$765m) in "emergency" aid from the French government to the disaster zone known as Crédit Lyonnais.

Fed waits

A record of successful monetary management has one disadvantage: it becomes difficult to judge when policy should change. What needs to be done is obvious if an economy has drifted into recession or inflation.

OBSERVER

Santer's short straw

As Jacques Santer has drawn the short straw when it comes to the Euro-Parliament in Dublin early next month, the hapless European Commission president is locked into an official visit to Japan between September 30 and October 2.

Age before beauty

Attending Bertelsmann press conferences is a bit like watching the platform antics of an old-style communist party rally - you get close as to what's in, who's out, from the jockeying of the acolytes around the big leader.

Open sesame

Jim Rowe, a journalist-turned-banker who wrote a book about Asia's emerging middle class, has done a very up-middle class thing: The former Economist's executive editor has quit his lucrative strategist role at Citic First Boston in Hong Kong to join the young, thriving publishing empire of Thai tycoon South Limsakong and taken a pay cut in the process.

Tasty morsel

When it comes to the 1990s - those lean and hungry survivors from waves of corporate downsizing - really want a survey by Hays Accounting Personnel in the UK finds that one in six would welcome subsidised membership of a sports club. But the single most popular perk is a staff biscuit tin, supported by three out of four employees.

Financial Times

100 years ago

Exchanging Names A jobber on the Stock Exchange was distinguished himself yesterday by the eager way in which he offered Consols, on a rumour gaining ground that Sir Philip Currie, our Ambassador at Constantinople had been assassinated.

50 years ago

Nationalisation Yesterday's meetings of the Sheepsbridge and Staveley Coal and Iron companies provided weighty objections to the Government's plans for the nationalisation - or something dangerously approaching it - of large parts of heavy industry.

Hanson's end

The impending break-up of Hanson, we are told, is the end of a chapter in the evolution of management. Next week, Lord Hanson's empire will be dissolved into its parts, and he himself will retire a year later.



IMF warns over Fed's reluctance to raise rates

Robert Chote in Washington
The US Federal Reserve will have to overcome its reluctance to raise interest rates soon if it wants to avoid a sharper and more disruptive tightening later, the International Monetary Fund warned yesterday.

room for manoeuvre to cut rates when this did not threaten to increase inflation.
The Fund said that prospects had improved for a pick-up in growth in Europe through the rest of this year.

country which had tackled its structural unemployment problem through labour market reforms.
The Fund warned that without further structural reform most European countries could not expect to reduce unemployment rates to below 8 or 9 per cent of the workforce without putting upward pressure on inflation.

Yeltsin facing two month wait for operation

By Chrysis Freedland in Moscow
Russian President Boris Yeltsin's heart bypass surgery will be delayed for up to eight weeks, but the Kremlin leader's medical team said yesterday it was confident the operation would be a success.

Debit Lyonnais

THE LEX COLUMN

Strong words from Brussels and fine words from the French finance ministry cannot disguise the substance of the latest developments in the long-running Credit Lyonnais saga.



growing Asian markets. Part of the justification for the stock's fullish rating - 15 times next year's expected earnings and a material premium over net asset value - is the company's evident shareholder focus.

Serious fraud

like too many other continental European groups, does not actually reveal its profits on a divisional basis, but it did say that BMG accounted for roughly 20 per cent of its about DM300m, giving a margin of 3.5 per cent.

Mr George Staple's call for a change in the way complex UK fraud trials are prosecuted may make him look a poor loser. After all, the Serious Fraud Office, which he runs, has had a string of high-profile defeats.

\$33m offer

Continued from Page 1
time it would strongly defend the action and launched its own damages claim against former management of the two companies. It is understood that in spite of yesterday's settlement the firm can still take action against third parties - including other auditors and some former directors.

Bundesbank firm on Emu proposals

By FT reporters
The Bundesbank yesterday said EU members which remained outside European monetary union should be denied access to Target, the proposed payments system for the euro, on the same terms as Emu members.

of the Bank of England, warned this month that the disputes could threaten co-operation between European central banks and create an unnecessary split between Emu members and non-members.

Bertelsmann

Having lost Europe's pay-television wars to Mr Leo Kirch and Mr Rupert Murdoch, Bertelsmann is now pretending they were not worth winning anyway.

Axa

A 52 per cent jump in net income is a sparkling result by any standards. Of course, Axa's figures were inflated by investment gains and the inclusion of its new stake in Australia's National Mutual.

What is to be done? Single long trials might be feasible, but they make unreasonable demands on jurors' time. An alternative would be for the most complex cases to be heard by a specialist tribunal.

Israeli troops in West Bank gun battle

Continued from Page 1
said. "But because there has been no progress in these negotiations by the Likud government the tunnel lit the fuse following weeks of frustration among Palestinians."

Mrs Ashrawi tried to visit the old city yesterday but was repeatedly turned back by Israeli troops.

archaeological sites under the wall and boost the economy of the city.

Europe today
Southern France, Spain and Portugal will be fine and sunny. Southern Italy and the south-west Balkans will have some heavy rain. Greece and the south-east Mediterranean will stay dry and sunny.

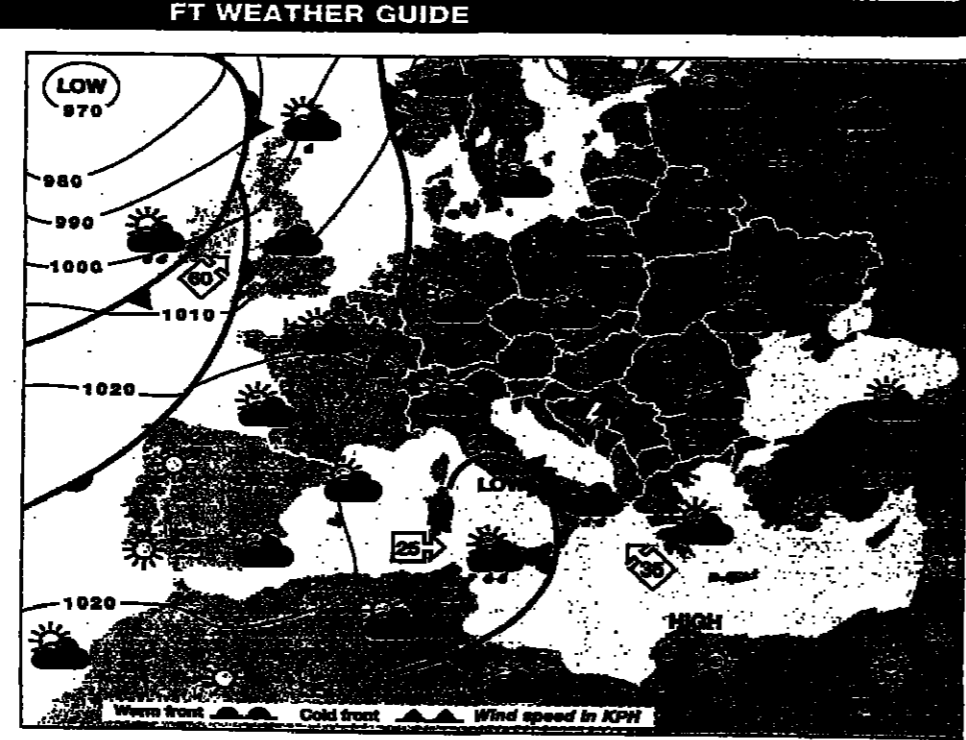
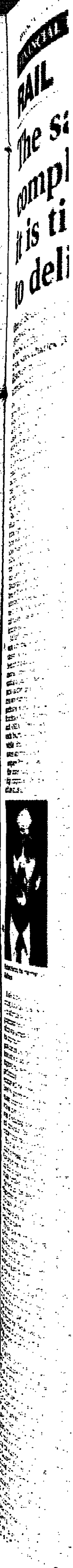


Table of weather forecasts for various cities including Abu Dhabi, Athens, Berlin, Buenos Aires, etc., with columns for temperature and weather conditions.

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# RAIL PRIVATISATION

## The sale is complete: it is time to deliver

One of Britain's most controversial privatisations is most of the way down the track, says Charles Batchelor. However, political uncertainty continues to cloud the issues

One of the most unpopular privatisations of recent years, the break-up and sale of British Rail, has been largely completed after four years of acrimonious debate. Final completion of the sale of the remaining passenger franchises and of BR's international container business may take a further nine months but the deal is substantially done.

Railtrack, the company which has taken over BR's track, signalling and stations, was floated on the stock market in May; three rolling stock leasing companies have been sold to private buyers; and nine of the 25 passenger franchises have been let. Most of BR's freight activities have been sold and the 13 track maintenance and renewal companies are in private hands.

But hardly has the framework of the fragmented, privatised railway network been put in place than commercial pressures are starting to join the separate parts together again. Companies are starting to acquire portfolios of train operating franchises. National Express and CGEA of France have each bought two franchises, while Stagecoach, which owns one franchise, plans to acquire Porterbrook, one of the three rolling stock leasing companies, if the competition rules allow.

A sale dubbed by its many critics "a poll tax on wheels" - in reference to a previous government policy initiative which was scrapped due to its unpopularity - and "a privatisation too far", now has to show it can deliver an improved rail service. The performance of the new structure will be closely followed by governments and railway companies worldwide as they, too, look for ways of reducing the costs and improving the performance of their rail systems.

Britain is not the first country to break up its publicly-owned railway monopoly. But it has taken the process further than any other, both in the degree of fragmentation and in the complexity of the contractual framework which has been put in place.

The Swedes were among the first to split track ownership from train operations, but the Dutch and the Germans have also moved to follow with a European Union directive aimed at ousting private competition on the network. Railroads around the world, in America, New Zealand and western Europe, are also turning over to private hands.

In the UK, political uncertainty continues to overhang the process as a result of strong expectations of a Labour victory in the general election. The sale must be held by May at the latest. Labour has been criticised for earlier statements that it would nationalise the industry, and its sights on creating a new British Rail, on the one hand, and on channeling the powers of the regulator, and on channeling the funds for infrastructure investments.

Some proposals have been criticised by the government as lacking coherence and as being difficult to see how they could be implemented.

even this limited programme could be made to work alongside the commercial structure which has been established. A Labour government's hands would anyway be tied by the mass of contracts which have been put in place.

The hope of supporters of privatisation is that the new structure will improve services. They point to the airline, shipping and long-distance coach industries, where ownership of the different elements is spread among different organisations and "regulated" by means of commercial contracts.

It is too early to judge whether the privatised companies will bring in improvements, but the changes included in the first franchising agreements with train operators look promising. They are committing themselves in some cases to ordering rolling stock and to making improvements to stations. The marketing of rail services seems set to become more focused as the operators concentrate on their own geographical areas or market niches.

"We have evidence that [the commercial framework] is driving performance higher than the command structure of BR ever did," says Roger Salmon, franchising director. "Features which we did not expect - such as new rolling stock and the expansion of track capacity through London - are being delivered."

The franchising of passenger operations has brought several bus and shipping companies into the rail sector for the first time. Stagecoach, Prisma and FirstBus, jointly with rail managers, have all acquired franchises. National Express has won two. Sea Containers, a ferry operator and container lessor, and CGEA, a French transport group, have also been successful.

Competition for the remaining 16 unsold franchises is expected to remain strong. Several more bidders, including Virgin, the airline group and MTL, a bus company, are keen to break into the market, while some of those groups which have already been successful are known to want to broaden their portfolios.

But the key to the success of privatisation is likely to be Railtrack, owner of the track, signalling and stations. Railtrack has the ability to stifle or encourage more traffic on rail by the level of access charges it sets and its willingness to support new services. Its ability to maintain and expand the track network will also play a crucial role.

Robert Horton, Railtrack chairman, is enthusiastic about the potential of the network. "We have inherited this wonderful thing from our Victorian ancestors which we have under-used and occasionally misused," he says. "We have to make the most of it."

Mr Horton believes that the commercial pressures which have now been imposed on the railway will allow investments to be focused where they will deliver most benefits. This will trigger improvements more speedily than was possible under BR.

Mr Horton has announced his intention of reducing costs by putting pressure on the companies which carry out £1bn worth of maintenance and track renewal work each year. But some of Railtrack's customers are less convinced about the change in culture at Railtrack itself.

Freight operators in particular fear that they are not being treated seriously by the company because they only account for 10 per cent of total railway revenues. If the government really wants to get freight off road



Still more romantic than catching an aeroplane - "We have inherited this wonderful thing from our Victorian ancestors which we have under-used and occasionally misused," says Robert Horton, Railtrack chairman. "We have to make the most of it."

**IN THIS SURVEY**

- The freight business faces a future if it might be neglected Page 2
- The future is unclear for the three rolling stock leasing companies which have taken over British Rail's fleet Page 3
- Railtrack is fearful of what a new government could bring Page 4
- PROFILES: John Swift, rail regulator Page 2; Roger Salmon, the franchising director in charge of finding buyers for British Rail's passenger train operating businesses Page 4; Great Western could become one of the first rail franchises to seek a stock market flotation Page 2; The "interloppy" service continues to raise blood pressures Page 3



Robert Horton, the chairman of Railtrack

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Rolling stock leasing companies • by Geoff Dyer

# A business of no guarantees

The potential profitability of ROSCOs is shrouded in uncertainty

When the government transferred the three British Rail rolling stock companies to the private sector in January, it was probably the least controversial part of the rail privatisation process. The Labour Party, which fought tooth and nail to stifle the flotation of Railtrack and the sale of the passenger franchises, even claimed to have invented the idea of separate rail leasing companies (rosco's).

However, this bipartisan spirit evaporated in August, when Stagecoach, the rapidly expanding bus and rail group, acquired Porterbrook, one of the rosco's, for £285m. The sale caused a political furore, as the management team that bought Porterbrook had only paid the government £527m for it. Labour threatened to impose a windfall tax on the rail industry if elected after it was revealed that 48 former BR managers stood to make a £24m profit from the deal.

Although the value of the company had risen by nearly £300m in its eight months in the private sector, most analysts reckoned Stagecoach had picked up a bargain, which fuelled the allegations of public assets being sold on the cheap.

Stagecoach's shares soared 60% to 542½p on the day it outlined the deal, in spite of the large rights issue that was unveiled to finance it and fears that it might be vetoed by the government.

For the government the £1.8bn sale of the rosco's was a means of creating new ways of getting private sector funding for the railways, freeing it from the limitations of the annual public sector finance round.

It would also exempt the train operating companies from the burden of buying

and maintaining — their own fleets of rolling stock.

Sir George Young, secretary of state for transport, said at the time: "Leasing has revolutionised the financing of cars. It is now set to do the same for our railways. From today we can expect open and imaginative competition to finance further investment in Britain's railways."

British Rail's fleet of 11,000 locomotives and carriages was split into three companies in April 1994: Porterbrook, Eversholt, which was also bought by its management for £580m; and Angel, which was acquired for £672.5m by a consortium including PricewaterhouseCoopers, Babcock Brown, a leasing and asset finance group, and Nomura International, the investment banking arm of Nomura Securities.

A total of 500 companies were approached by the government to buy the rosco's, including Stagecoach, which failed with a bid for Angel in partnership with the company's management.

The rosco's have leased the rolling stock, which has an average life of 17 years, to the 25 train operating companies for between four and five years. They are expected to finance new fleet when the operators begin placing orders.

But in spite of the up-beat market reaction to the Stagecoach deal, the potential profitability of the rosco's is shrouded in uncertainty. Stagecoach is entering uncharted territory.

For a start there are no guarantees about the level of orders that the operating companies will place, although the incentive is certainly there.

The operators need to boost revenues by attracting more passengers and the experience of the Chiltern line shows that passenger numbers have increased by 80 per cent in the three years since it was modernised.

Porterbrook is the only rosco to have secured a new

order for trains since privatisation, with a £24m leasing deal from Chiltern Railways in September. However industry executives predict that a number of other orders will follow before Christmas.

And when the existing leases run out, the rosco's will not have the market to themselves, but will have to compete with a whole range of potential rivals.

Rosco executives recognise that rolling stock manufacturers, such as ABB and General Electric, could try and get into the leasing market in which they have some experience.

However Sandy Anderson, managing director of Porterbrook, is confident about the prospects.

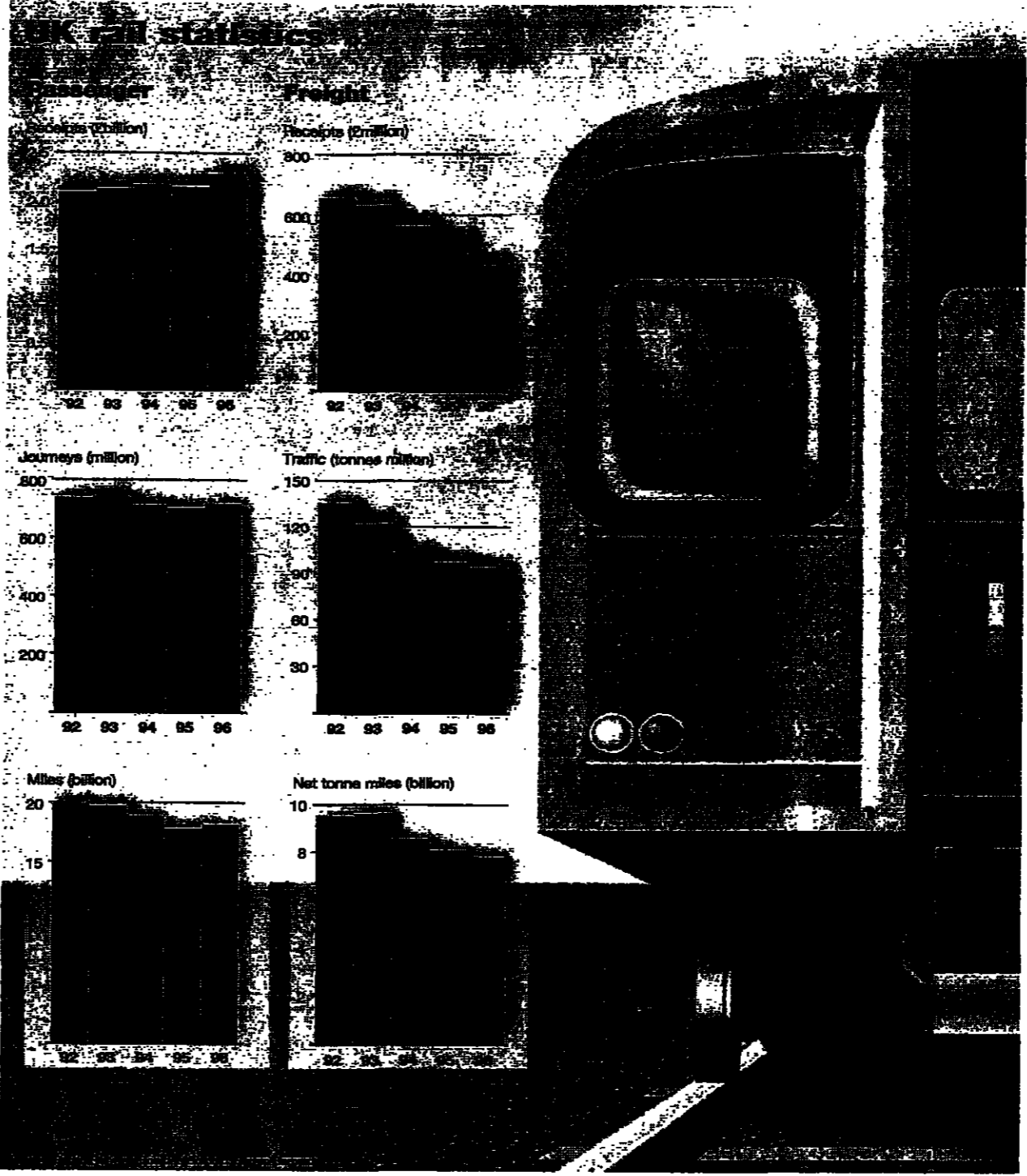
"I have made my living from leasing for the last 20 years and I hope to do so for another 20," says Mr Anderson, who formerly was managing director of TYP UK, the trailer leasing company.

The rosco's are more skilled than most competitors are at providing financial packages for leasing customers, he claims. "As long as we are intelligent and innovative, the market will be there," he says.

Another question mark over the rosco's concerns the savings they will be able to achieve on maintenance. The government has set them a target of reducing maintenance costs by 3 per cent a year, leading to savings of £400m over eight to ten years, according to Hambros Bank, which advised the government on the rosco sales.

Mr David Banks, an adviser to Angel, admits that the targets are tough, but argues that savings can be made, in part by making more efficient use of depots, and also by rescheduling maintenance work, for instance.

Stagecoach believes that Porterbrook's spending on maintenance can be reduced by 30 per cent, partly through the bulk purchase



## Time to deliver

Continued from page 1 and on to rail it must insist, through the offices of the rail regulator, Mr John Swift, that Railtrack offers a better deal, they say.

The freight companies complain that Railtrack is inflexible in its approach to track access charges. Companies seeking to develop new freight sidings or connections across Railtrack land say that Railtrack is slow to spot opportunities and quick to charge a lot for them when it does realise the potential of a deal.

The three rolling stock leasing companies (rosco's) which inherited BR's 11,000 locomotives and carriages have also caused some concern among other operators. They question whether there is enough incentive for the rosco's to offer attractive leasing deals and to introduce new rolling stock.

Competition for the rosco's seems set to emerge from among the rolling stock manufacturers which are keen to strike direct deals with the train operators. The rosco's have the benefit of long-term leasing contracts signed to make them more saleable to the private sector but as these run out, they may face a tough battle to retain their market share.

The uncertainties caused by the BR break-up led to a gap of nearly three years in the placing of new rolling stock orders and forced manufacturers to trim their workforces and close factories. This damaging hiatus came to an end earlier this month when Chiltern Railways ordered 12 air-conditioned, diesel-powered carriages from ABB-Daimler Benz Transportation (Adtranz) but there is still a long way to go.

The government's success in selling off the network on such a tight timetable has surprised many observers. But privatisation still has everything to prove. Senior rail managers expect it to take at least another 12-24 months before real improvements start to show. Meanwhile, the prospect of an election within the next 10 months means political considerations will continue to cloud the picture.

of components, such as gearboxes, which are shared by the group's buses and trains. The widely predicted change to a Labour government could also present problems. The party has been at pains to refute suggestions that it would get rid of the rosco's. However Labour is considering giving

powers to the rail regulator, who has imposed investment requirements for Railtrack, to oversee the leasing companies as well.

Stagecoach, meanwhile, still has to win the approval of the regulatory authorities for the Porterbrook deal. The rail regulator has collected responses from interested

parties on the takeover, which he said raised public interest issues related to future investment and competition in both rolling stock and passenger services.

The regulator is to report to the Office of Fair Trading, which investigates possible anti-competitive behaviour, and which will in turn

advise the Department of Trade and Industry on whether a monopolies investigation is necessary.

If the deal is approved, then it is possible that the other rosco's will become takeover targets.

However, the political controversy surrounding the rosco's might not be over yet.

Manufacturers • by Charles Batchelor

# Reinventing rolling stock

Suppliers are having to deal with far-reaching changes in the way markets work

Britain's rolling stock manufacturers have had a tough three years. Uncertainties surrounding privatisation led to a drying up of new orders and a swathe of factory closures and redundancy programmes.

The first order since privatisation was placed earlier this month by M40 Trains, the management buy-out team which won the franchise for Chiltern Railways. This was a welcome signal that industry confidence is beginning to return.

However, the deal for 12 diesel-powered coaches to be built by ABB-Daimler Benz Transportation (Adtranz), is valued at just £34m and will need to be followed by more substantial contracts if the industry, even in its present slimmed-down form, is to recover.

The British train manufacturers have suffered more than most because of the speed with which privatisation has been pushed through, and the radical nature of the restructuring of the UK railway industry. But rolling stock suppliers throughout Europe and beyond are having to come to terms with far-reaching changes in the way their markets work.

The large state-owned monopolies which have provided rail services in Europe are gradually being dismantled to make way for a more fragmented market. The new commercial buyers of rolling stock will place a higher premium on value-for-money from their trains, and are likely to be less interested in engineering refinements than their state-owned predecessors.

The train manufacturers have responded to this fragmentation among their customers with a series of mergers. GEC of the UK and Alcatel Alsthom put their transport divisions together and, more recently, ABB and Daimler Benz merged their activities. Siemens has not gone for a full-scale merger but it has set up a joint marketing operation with GEC-Alsthom to promote the two

companies' high speed trains outside Europe and North America.

The manufacturers have also made use of the lull in UK orders to develop standardised carriages which can be used on a wider range of services and which will have a higher resale or residual value when the relatively short-term franchises change hands. The manufacturers have been developing basic body shells which allow variations in window position and the configuration of seats.

Under the new railway regime created by privatisation, train operating companies lease their locomotives and carriages from one of the three rolling stock companies which inherited BR's train fleet. The operators are at liberty to strike direct leasing deals with the manufacturers or even to buy new trains outright, but the rolling stock leasing groups, or rosco's, are strongly

The train operators will want vehicles which meet their needs — while the rosco's will want equipment which will appeal to other operators when franchises end

placed to dominate the market.

The new railway structure will mean new train orders will be placed by the operators and the rosco's acting in concert.

The train operators will want vehicles which meet their needs while the rosco's will want equipment which will appeal to other operators when franchises end.

Although only one firm order has been placed for new rolling stock so far, a number of the companies which have acquired rail franchises have given commitments, as a condition of their contracts, that they will refurbish their fleets or buy new rolling stock.

Prism Rail, the new operator of the London, Tilbury & Southend line, is to refurbish one-third of its fleet over the next nine months and replace the remainder with new trains by 1999. The National Express coach group, meanwhile, has invited manufacturers to bid

to supply new air-conditioned diesel trains for its Midland Main Line routes.

In the bus industry in London, which, unlike the rest of the country, is still subject to regulation, new operators began by providing refurbished buses but later moved to supplying new ones. New buses are now essential if a company is to win tenders.

However, new equipment is expensive, and while attention in the rail industry has focused on the resumption of new train orders, refurbishment may be the pattern for many of the train operating companies.

A proposal to modernise up to 2,000 ageing commuter trains for a quarter of the cost of new ones was launched last July by Adtranz, and work has since begun, in tandem with Angel Train Contracts, on developing a prototype.

The idea is to take 25-year

old "slam door" trains, replace their steel body shells with aluminium ones, and install electrically operated doors controlled by the driver. Rail travellers would have a smoother, safer ride, while train operators could afford to upgrade their fleets, according to Mr Stig Svärd, chief executive of Adtranz.

The refurbished trains would have crumple zones to absorb the impact of a crash and anti-climb devices to prevent carriages riding up and sliding through each other as can happen on some of the older rolling stock. The original wheels and underframes of the carriages would be retained, but they would be given an extra 15 years of useful life by the upgrading.

With the exception of the purpose-built high-speed rail link between the Channel tunnel and London, there are no plans for high speed services in the UK on the lines of the French *trains à*

*grande vitesse* (TGV). The cost of building new lines and the distribution of population, which makes for frequent stops, both militate against a British TGV.

However, higher speeds on conventional track can be provided by tilting trains, developed by British Rail in the late 1960s and 1970s, but abandoned in 1981 after technical problems overwhelmed the project. Tilt technology has since made great strides and tilting trains are now in regular service in Italy, Sweden and Germany and are being looked at by many other countries.

Proposals for tilting train adapted to UK conditions were launched earlier this month by Adtranz. These trains, based on technology tested in Sweden and Germany, would be built at the company's Derby works.


Several train operators, including Great Western and InterCity East Coast have expressed an interest in tilting trains.

Attention has focused on the rolling stock needs of the passenger railway but the freight sector also has much elderly equipment. Wisconsin Central Transportation, the US owner of BR's heavy freight operations, now renamed English Welsh & Scottish Railway, has ordered up to 250 freight locomotives for around £250m from General Motors of the US.

This was a blow for European manufacturers, although it was not entirely surprising given US expertise in making freight locomotives and Wisconsin's US parentage. GM locomotives had already proved themselves in the UK, moving coal and bulking aggregates for National Power and Mendip Rail respectively.

Few would deny the need for the replacement or modernisation of large parts of the train fleet inherited by the private sector operators from British Rail. Even before the three-year gap in new orders, much equipment was nearing the end of its useful life.

Privatisation was intended to bring new capital into the railway and to provide the means to renew worn-out assets. The first signs of a revival are becoming visible but there is still a very long way to go.



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## 4 RAIL PRIVATISATION

■ Railtrack • by John Kingman

# Wide disagreement on prospects

Investors are nervous of Labour's plans should it win the next election

The centrepiece of Britain's rail privatisation programme - the flotation of Railtrack the monopoly infrastructure owner - was always supposed to be kept until last. Until all the passenger franchises had been let, the logic ran, investors would be unable to form a clear view of Railtrack's customer base. Only then could the company's 10,000 miles of track - and 40,000 bridges, viaducts and tunnels - finally be sold. That, at any rate, was the assumption. In the end it was turned on its head: Railtrack was successfully floated at the end of May, raising £1.9bn.

The fact that many of the infrastructure company's customers remained in the public sector hardly featured on investors' list of worries. Instead, right at the top of the list was the Labour party's aggressive opposition to the sale.

The worst fear - that a Labour government might actually threaten to renationalise the company - never materialised. Nonetheless, the detailed regulatory plans from Labour's then transport spokesman Clare Short were enough to give investors cause for worry. At the heart of Labour's

plans was a proposal to bring the rail regulator, John Swift, under closer political control. Since the regulator has extensive powers - over Railtrack's charges, its investment programme and its ability to hand cash back to investors - this would be a controversial move. It would make the post different from the regulators of other privatised industries, whose independence is closely guarded. Nonetheless, Labour argued, in this case "matters of public policy are properly the concern of an elected government".

In particular, Labour hopes to cut charges for access to the network, to encourage more intensive use of the system. Nonetheless, this may amount to a long-term objective rather than an immediate worry. "There is no question", Ms Short reassured investors at the time, "of existing contracts being cancelled against the wishes of parties to them".

But weighing up the potential risks posed by a Labour government was not the only judgment investors had to make. Even without the Labour threat, there is wide disagreement over the company's prospects.

At one extreme, some see the stock as a dull utility, something close to a bond. They point to the company's unexciting revenue growth prospects. Even if, as some hope, privatisation does

boost usage of the rail network, this would still be slow to feed through to Railtrack's income, most of which is already fixed under long-term contracts with franchisees.

Moreover, to keep its revenues secure, Railtrack has to keep its performance up to scratch. Under its contracts with franchisees, a complex "performance regime" entitles train operators to substantial payments if the service Railtrack provides is poor.

Railtrack can, of course, boost its revenues by making better use of its extensive property portfolio. But although this should be a useful additional income source, most analysts expect it to have only a relatively marginal impact on profits.

In addition, some worry that Railtrack's scope for cutting costs is limited: a high proportion is fixed under contracts with separately privatised infrastructure maintenance companies.

But over time, the share price has blossomed as a more optimistic school of thought has tended to prevail. Labour's Clare Short has been replaced by the less mercurial Andrew Smith.

Meanwhile investors have tended to look back more to the heartening experience of previous British privatisations, where businesses with apparently uninspiring prospects have still proved sparkling stock market successes. However dull the underlying businesses looked, cost-cutting has often generated formidable cash flow growth. Meanwhile by gearing up unstretched balance sheets, many privatised companies have been able to throw off lavish sums to their shareholders.

For investors, the hope is that Railtrack may be no different. Certainly many hope it will be able to cut substantial amounts out of its costs.

Even though the bulk of maintenance work is contracted out, Railtrack stands to benefit from lower costs in the separately privatised infrastructure units when its contracts come up for renewal. Some are even hopeful that the contracts may be renegotiated early.

Meanwhile the company may well be able to trim its own staff numbers. It still employs 11,400 people, of whom 3,000 are described as "executives and management".

A further hope is that the company may be able to make savings on its capital and infrastructure costs. Railtrack's profit and loss account, for instance, is heavily laden with a big "asset maintenance provision" for regular work keeping up the network. Last year this amounted to £483m, yet only £33m was actually spent. If Railtrack can cut these costs, the boost to profits could be substantial.

Another lesson of previous privatisations is that, where businesses have been sold with low levels of debt, investors can benefit handsomely from strong dividend growth - as well as one-off benefits such as special dividends and share buy-backs - as companies put their capital structures in order.

For utility businesses as secure as Railtrack, the stock market is becoming increasingly tolerant of higher levels of gearing. As utilities have tightened their capital structures, the flow of cash to investors has been very substantial.

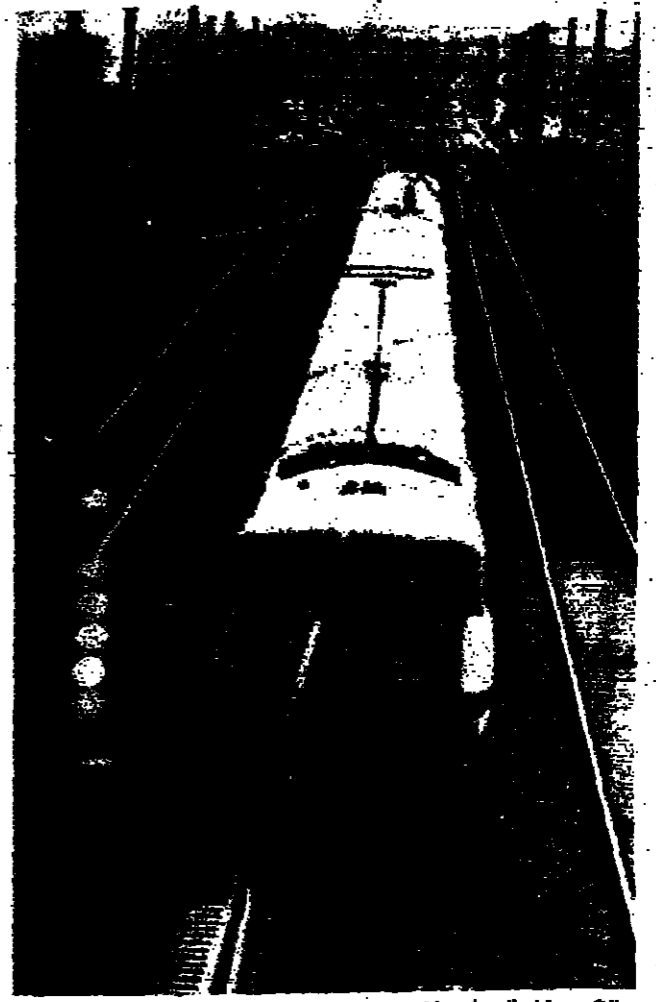
To some extent, the government has already learned this lesson. Railtrack's £600m of debt is a tougher outcome than many previ-

ous privatisations - especially since the company is planning an investment programme, including the £600m Thameslink project.

Nonetheless, the pressure on the company's balance sheet could have been greater. In a tense battle with the government, Railtrack managed to extract a large debt write-off - enough, in a full year, to cut its interest charge from £117m to £38m, a modest figure in the context of the company's £650m annual operating cash flow.

As a result, some hope the company will at some point be able to follow other utilities and consider making a large cash hand-out to shareholders. In view of the Labour party's concerns, however, such a move could be intensely politically controversial.

This complication encapsulates the company's broader dilemma. Few doubt there is plenty of scope for Railtrack to produce generous returns to its shareholders. But in doing so, it has to manage a delicate balancing act: the better the returns for investors, the more exposed the company is likely to be under a future Labour government.



This is one privatisation many thought would be derailed by public criticism - but it remained on track

## PROFILE Roger Salmon

# The man who proved them wrong

In the beginning, consensus was that privatisation could not and would not work

Roger Salmon, the franchising director in charge of finding buyers for British Rail's passenger train operating businesses, has one of the most high-profile jobs on the new railway.

Political attacks on the rail sale have understandably focused on the part of the railway which most directly affects the largest number of people. For a man

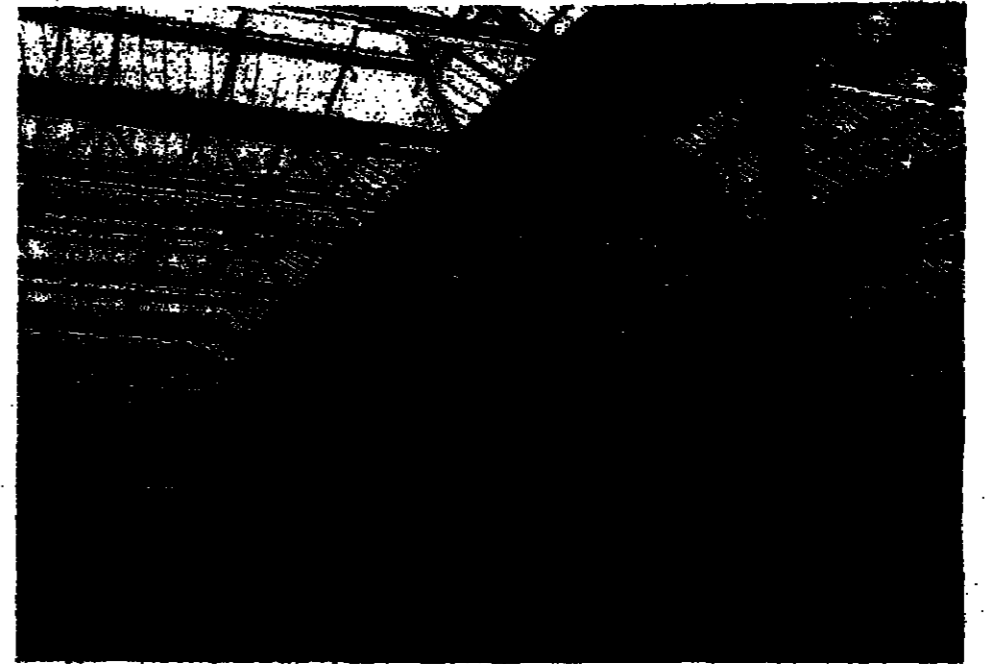
not entirely comfortable with standing in the public spotlight, he has handled this task with some skill.

There have been embarrassments, though some so grave as seriously to delay the process. A successful court challenge by the Save Our Railways group appeared to confirm Mr Salmon was being unduly cavalier with minimum service levels and obliged Sir George Young, transport secretary, to rewrite the government's guidance on this issue.

Mr Salmon's own surprise announcement in April that

he planned to step down in October, two years before the end of his five-year contract, betrayed a lack of political sensitivity. Mr Salmon, aged 49 and formerly a merchant banker with NM Rothschild, may have been justified in taking the view that the template for franchise sales was in place and his task was accomplished. But at that time only four of the 25 franchises had been sold, and the stock market flotation of Railtrack was only weeks away.

Officials involved in rail privatisation attributed this move to a combination of the pressures of the job and an impatient streak in Mr Salmon. A man of quick intelligence who is independently wealthy, he saw no need to stay once - in his eyes at least - the job was done.



Roger Salmon, franchising director

Picture: Filipa White

He is to be succeeded next month by John O'Brien, currently chief operating officer in the Office of the Franchising Director. Mr O'Brien, who is 44, has been appointed for the next three years. A chartered accountant by training, he spent 11 years with Granada Group, the leisure and entertainment company, from 1981 to 1992.

It is true that the momentum of franchising has increased over the past three months. Once the framework for sales had been established, the franchising office was able to churn out deals at an ever faster pace. The award of the South Eastern franchise to the French Compagnie Generale des Eaux last month brought the number in the private sector to nine. Information memoranda have been produced for all 25 and invitations to tender sent out for 14.

What has been remarkable is that, as the pace of franchising sales has speeded up, Mr Salmon's department has been able to strike ever better deals. The management team which was successful in bidding to run the Chil-

tern Railways company has committed itself to introducing new trains despite only holding a seven year franchise. "It is a fabulous list of features on the Chiltern franchise," says Mr Salmon. "We have got new trains, station improvements, larger car parks and facilities for cyclists."

"In 1993, when we started work, the consensus in most of the rail industry and in the country was that it could not work, would not work and if it did it would cost a fortune. It was an enormous challenge to create a structure which makes commercial sense and which will deliver good businesses to potential buyers. I think we have done that and we have done it at the top end of expectations."

Among the key agreements which have been signed are those guaranteeing through ticketing and interavailability - so travellers can cross the boundaries of the different train operators without impediment, and each company will accept the tickets of others.

Controls have been slapped on commuter and other fares where rail enjoys an effective monopoly and a performance regime has been put in place to ensure that the train operators and Railtrack are penalised for poor performance and rewarded for good.

"We have evidence that this is driving performance higher than the command structure of BR ever did," says Mr Salmon. Over the past two months the franchising office has paid out premiums to the train operators because their services have been more reliable than expected, although Mr Salmon acknowledges that in spring and early summer the railways usually benefit from favourable weather conditions.

There is every prospect that Mr Salmon's officials will be able to negotiate even better deals from franchise bidders over the next few months. Those which have yet to win a franchise will be keener than ever to gain a foothold, while some of those which have been

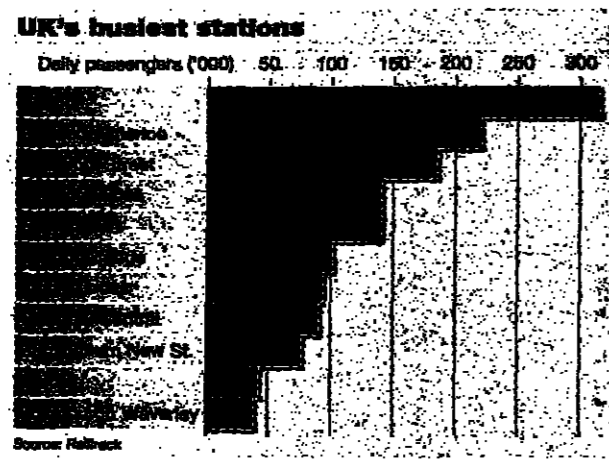
successful already are known to want to extend their rail portfolios.

Commitments to provide new trains and make station and timetable improvements seem set to become standard, even on the shorter franchises.

If Mr Salmon and Mr O'Brien succeed in selling off the remaining franchises before the next election, then the task of the franchising office will change. It will then be primarily engaged in monitoring franchisees to ensure that the agreed contracts are kept to.

It will be six years before the first one comes up for resale, although the possibility of mergers between franchise holders could keep officials busy. But if Labour wins the next election, prospects for an independent franchising office look dim. Labour has promised the area will come under the direct control of the transport secretary. (See "Wide disagreement", above.)

Charles Batchelor



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مكتبة الصول



# THE CHEMICALS INDUSTRY

## Contrary views that rarely meet

A discriminating public and discerning policy makers are needed if the balance between the relative benefits and costs of chemical use is to be altered, says **Jenny Luesby**

People do not make rational judgements about the chemicals industry.

In the 1960s it was hailed as part of the white heat of technology. In the 1980s it was condemned as dirty, dangerous and substantially superfluous.

As this survey shows, both cases can still be made. But neither is adequate to the task of defining and regulating the industry's role in our lives.

Yet this is something that needs to be done. An untrammelled marketplace has no mechanism to reflect long-term environmental gains and losses. At the same time, modern society has discovered that it cannot afford to ignore its own impact on the environment.

If consumers had perfect information and took complete responsibility for the effect of their consumption on the planet, perhaps the market could be left to judge the chemicals industry.

But in reality, consumers receive only partial information about environmental impact - setting up the possibility that they might contribute to environmental depletion in the very act of seeking to prevent it.

Data on the pollution caused by cars, chemical manufacturing and the use of chemical products serves to reinforce the idea that nature is best.

However, if all, or even most, consumers switched to wood from plastic, cotton from nylon and slate from asphalt, the world's natural resources would not be equal to demand.

In the US, more than 80 per cent of the roofing on new houses is made from artificial materials. Indeed, by value, 40 per cent of the

materials used in building a house are man-made.

Over the past few decades, as consumption and the global population has risen, society has developed a dependency on chemicals. It cannot simply switch to natural alternatives.

Nor can it rely on its existing natural products without chemical assistance, one example being the housing stock, the longevity of which is directly linked to the use of chemicals for damp proofing and wood preservation.

Yet it must reduce the environmental impact of its consumption. Comparative information would help. As Alan Watson of Friends of the Earth points out, alternatives assessments, which consider the environmental impact of substitute products, have an important role to play in directing both producer and consumer.

This type of assessment might one day allow us to understand which is more environmentally friendly, recycling nylon or processing cotton. At the moment, this is far from clear, despite the widespread belief that cotton holds the advantage.

However, even after environmental gains have been identified, individual consumers might not feel the responsibility rests with them. And, in some cases, the stakes are so high that public authorities have chosen to intervene.

On this basis, the production of CFCs was banned. Companies might have chosen to replace their air conditioning units and cold stores simply because they understood that CFCs were damaging the atmosphere.

But a complete shift would have been unlikely. The

phasing out of production and marketplace incentives, such as heavy taxes in the US, has triggered the development of CFC-substitutes and ensured their gradual take-off.

Similarly, public authorities have a clear role in controlling emissions. Even if consumers were willing and able to penalise a company sufficiently to ensure it cleaned up, statutory monitoring would be required to establish which producers were creating excessive waste or emissions.

Thus, there is no way around regulation of the industry. Which means that policy makers, and the public, must take a view on the chemicals industry and its output.

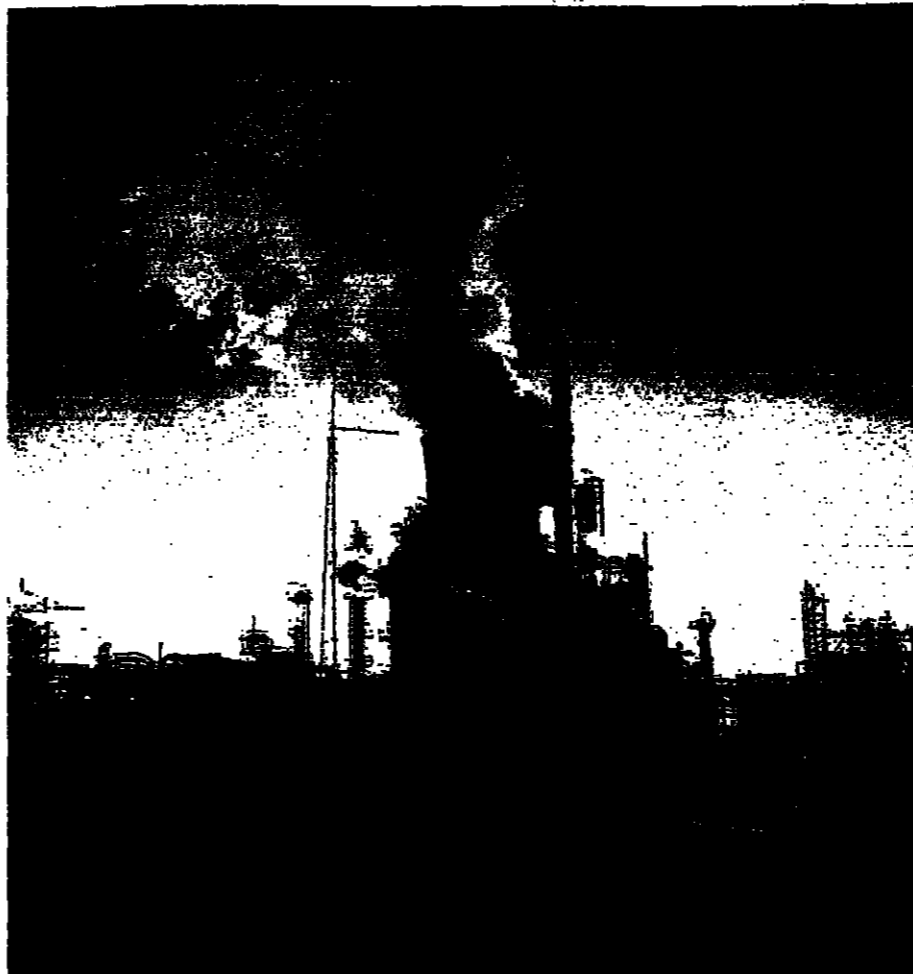
To achieve the best outcome for the environment in this process will require complex assessments and decisions.

It is easy to decide that chemicals which present a health risk must be banned, but someone has to decide what constitutes a health risk.

An example of this is pesticides, which collectively extend the world's food resources by nearly 100 per cent, but which have also been shown to cause cancer in laboratory rats.

Bruce Ames - of University of California, Berkeley - one of the world's leading toxicologists, suggests the cancer risk to humans from daily in take of pesticide residues is far less than that from a glass of water.

And even when a chemical is blatantly nasty, such as DDT, there may be a case for its continued existence. DDT is also used to control malaria. The lives that would be lost if it were ban-



Enemy or friend? Pollution is evidence of the evils resulting from the production of chemicals, but drugs can help save lives.

**IN THIS SURVEY**

- ➕ **Pluses and minuses: the case for and against the use of chemicals in various sectors is examined in linked articles**
- ➔ **Pharmaceuticals and health care additives help purify water, but drug companies are not free from controversy** page 2
- ➔ **Consumer use of man-made products helps conserve natural resources but they also pollute** page 3
- ➔ **Consumer incentives are needed to persuade companies to reduce their use of harmful materials** page 4
- ➔ **Benefit or cost? Two sides to the argument**
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- ➔ **How do higher crop yields make up for harm to the human diet caused by chemicals?** page 6
- ➔ **Greenhouse food packaging**



PH: Brown/Tony Adamson

ned without being replaced by a suitable alternative must surely be a consideration in determining its future.

Similarly, chlorine is the subject of a polarised debate, pitting a lobby that supports a complete ban on the chemical against those who argue it is indispensable.

In fact, chlorine does lie at the heart of the chemicals industry, since it is used to break bonds so that new molecules can be formed, and as a bonding point within molecules for other chemicals.

As a result, 80 per cent of the output of the chemicals industry either contains chlorine or has been made using it.

However, this very same ability to disrupt other mole-

cules means that chlorine is highly toxic. Its volatility within organo-chlorines - molecules that contain both carbon and chlorine - is variable, and contested, but in some cases represents a serious hazard.

If sustainable development is ever to be achieved, society needs to make difficult and sometimes detailed decisions about how and when it is prepared to see chlorine used.

"There is nothing difficult about the poles. Policy makers must make the hard decisions that lie in the middle," says Scott Barrett, an environmental economist at the London Business School.

In this process, consumers cannot benefit from too narrow an assessment of risk. There are some chemicals

where a ban would clearly create greater environmental costs than benefits, and the pressure on our environment is too great to accommodate large mistakes. However, perhaps the agenda would move away from banning and towards technical solutions if the benefits of the chemicals industry were better understood.

The chemicals industry has been identified as one of the main contributors to pollution. But it is also the leading supplier of raw materials to the rest of industry. As a sector it has also done much to bridge the gap between consumer demand and the limited availability of natural resources.

In a house, 1kg of oil used to make plastic insulation saves 75kg of fuel oil. By

weight, 8 per cent of an average car is now made of plastic, saving 0.5 litres of fuel every 100km.

What the public needs from the chemicals industry is more utility for less pollution, and that means research and development, and it also means regulation.

According to Huls of Germany, the proportion of plastics in cars could theoretically be lifted to 40 per cent, cutting fuel consumption by almost four litres every 100km. But fuel consumption is an easy market issue. Drivers will favour cars that use less fuel.

The company's own work on a fuel pipe that does not allow fuel to permeate into the surrounding air has been triggered by US regulation, says head of technical mar-

keting, Christian Baron.

Where regulatory requirements appear, chemical companies leap into the breach: a patented product in an uncrowded market is desirable in any industry.

The downside scenario is that sustainable development will require the western world to cut its material and energy consumption by 75 to 90 per cent.

If a better way forward is to found which does not open the door to food scarcity, inadequate shelter and warmth, and deteriorating health, the chemicals industry will be central to it.

But the pace of its progress will depend on realistic assessments of costs and benefits, a discriminating public and discerning policy makers.



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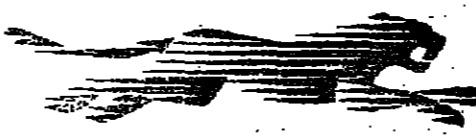
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2 THE CHEMICALS INDUSTRY: PHARMACEUTICALS AND HEALTHCARE

Additives help purify the water we drink but the healthcare sector has a mixed environmental performance

# Purity in the pipeline

Tough rules on water hygiene can only be met by a series of complex treatments, says Daniel Green

Chemicals and health do not mix in the public mind. But in reality, companies in the water industry have to turn to chemicals to help them meet stringent requirements for hygiene.

World Health Organisation guidelines call for a "multiple barrier method of water treatment", says Jenny Colbourne, operational science manager at Thames Water and visiting professor of civil engineering at Surrey University.

This means water suppliers such as Thames apply a series of treatments to drinking water, each of which is designed to eliminate some health risk from the original untreated water. Several of these stages rely on chemical additives.

Before chemicals are used, about 90 per cent of impurities in storage in a lake or reservoir can be eliminated through simply leaving the water to stand in the open air. "Dirt" in water can act as a safe haven for bacteria, viruses and parasites. They would cause health problems if allowed into drinking water.

But most of the dirt simply settles out when the water is still. "Ultraviolet rays in sunshine" kill bacteria by killing bacteria.

After that, the treatments become more complicated:

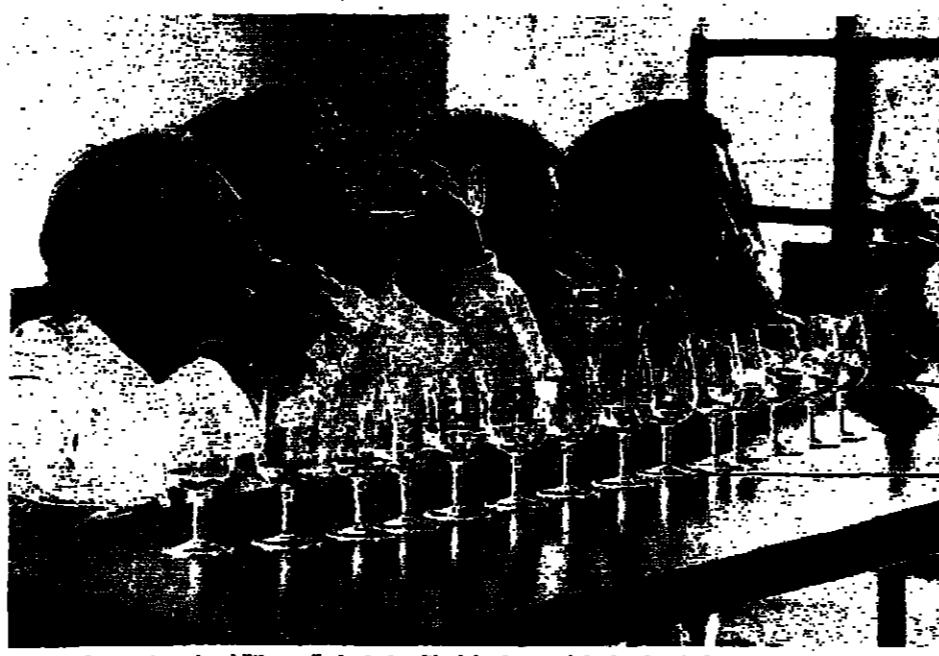
- Coagulants catch remaining dirt particles in froth. These have become increasingly important because tra-

ditional filtration plants, using sand alone, need a lot of land.

With coagulants smaller particles can filter water more quickly.

Coagulants include ferric sulphate and chloride and poly aluminium chloride (PAC). These last two are increasingly popular with water companies. But markets are likely to remain for a wide range of coagulants to deal with different chemical conditions. Manufacturers include Laporte of the UK.

- PH adjusters to treat acid soft water or alkaline hard water include lime or sulphuric acid. The pH needs to be adjusted to help coagulants and disinfectants work at their best.
- The suppliers are mainstream chemicals companies such as ICI.
- Pesticide removers include activated carbon and ozone. There are dozens of suppliers of activated carbon, which is also used in portable filtration machinery.
- Thames Water makes its own ozone on site using bulk liquid oxygen. The activated carbon market is growing rapidly, says market research company MSI.
- Pesticides levels have grown rapidly in the past 20 years thanks to agricultural use. They escape normal filtration, coagulation and disinfection processes.
- Chlorine as a disinfectant comes from both gas and hypochlorites. Chlorine itself can then cause problems either on its own or by reacting with other materials, such as copper with which it can form chloroform.
- Chlorine levels are limited with the help of sulphur dioxide, and there are many suppliers of both. Ozone may become increasingly popular



Getting the treatment: additives eliminate health risks from original untreated water

	1994	1995	1996*	1997*	1998*	1999*	2000*
Drinking water	364.3	369.4	372.8	378.9	387.9	394.8	401.9
Industrial effluent	239.5	247.5	257.4	267.8	281.3	287.0	306.1
Boiler and cooling water	143.7	145.1	148.1	151.0	158.6	171.3	183.3
Sewage	9.2	9.7	10.1	10.5	11.0	11.4	11.9
Total	756.7	771.7	788.4	808.2	838.6	874.5	903.2

\* Forecast Source: Trade and Marketing Intelligence and Prospects

as an alternative to chlorine because it is viewed as more environmentally friendly.

The disinfectants are a safety net in health terms, killing infectious agents that have passed through earlier treatments.

- Ammonia is used in the London area and other cities where pipes are especially long to keep the chlorine in the water for longer. Monochloramines formed by ammonia and chlorine are much more stable and effective as a disinfectant.
- Other water companies may have to deal with the problem of lead piping. They add phosphoric acid to line the pipes with an insoluble coating of lead phosphate. Phosphoric acid suppliers include Albright and Wilson of the UK and Rhône-Poul-

enc of France.

Even though regional, the phosphoric acid business to water companies adds up to thousands of tonnes per year, says Brian Shaw, sales manager for industrial phosphates at Albright and Wilson.

These are the chemicals for the biggest single market in the water industry, that of water purification.

It is a sector that has seen its best days in terms of sales growth for the chemical additives. In the early 1990s, sales of water purification chemicals grew at 4 per cent a year, thanks to moves by the water industry to comply with the European Union's drinking water directive.

The threat of hardy infectious agents such as the par-

# Still not entirely free from controversy

Clive Cookson finds that drugs and healthcare companies are still big users of pollutants

The healthcare and pharmaceutical sectors pride themselves on being clean industries, largely free of the pollution problems that beset bulk chemical manufacturing. But they are not exempt from environmental controversy.

The pollution issue that has received most publicity this year is the way chemicals in the environment can mimic the effect of hormones, particularly oestrogen, and allegedly damage the human reproductive system. Environmentalists have linked these "oestrogen mimics" to evidence of declining sperm counts and increasing cancer rates.

Despite hundreds of scientific studies into environmental hormone disruption, there is no consensus about which chemicals are responsible for the damage, if any. A great variety of other molecules, natural and man-made, will fit into the oestrogen receptor on human cells - scientists do not know why nature has designed this particular molecular lock to such a loose tolerance - and the list of potential culprits includes a wide range of industrial chemicals used in making plastics, pesticides and other products.

No one knows whether the healthcare industry contributes to the problem, through either its intermediate manufacturing operations or its final products.

An obvious possibility is that synthetic female hormones, excreted by women taking contraceptive pills, find their way through sewage discharges into the environment. Some studies have suggested that the amounts

of hormone from this source would not be sufficient to cause trouble but Roger Lilly, an industry campaigner with Friends of the Earth in London, says recent evidence is more ambiguous.

James Hagan, corporate environment director of SmithKline Beecham, the Anglo-American pharmaceutical giant, says: "The industry is taking the issue seriously and making an evaluation of it, though there is no evidence that pharmaceuticals are implicated."

SB is a good example of the new priority given by the drugs industry to environmental protection. Its policies - promoted actively by Jan Leschly, chief executive - ensure that not only the 200 employees directly responsible for environmental affairs but all 50,000 staff worldwide "think environmentally".

SB recently published a detailed environmental report, a practice that has become common in the chemical and energy industries but is still unusual in pharmaceuticals. This shows, for example, that the company's environmental spending rose from £18m in 1992 to £57m in 1995.

The SB report presents a mixed picture of the company's environmental performance. Since 1992, solvent emissions have been cut substantially and recycling has increased enormously, but the total amount of solid waste has also gone up slightly - and last year SB was fined for two minor incidents, one involving an oil spill and the other non-compliance with effluent permit conditions.

To the consumer, drug packaging seems an obvious example of waste. The volume of plastic, paper and cardboard may exceed that of the pills inside. The industry says it is trying to cut wasteful packaging but as Andrew Reid, Glaxo Wellcome group environment adviser, points out, regula-

tions and patient safety requirements do not give it a free hand.

"Designing and approving a drug pack is necessarily a disciplined and time-consuming business, and we cannot change it as we would a soap powder package," he says.

A more specific environmental issue on which drug companies may be caught between legislative requirements is the use of CFCs, the gases implicated in destroying the ozone layer in the upper atmosphere. Now that non-essential applications of CFCs - such as in refrigeration - have been phased out in the industrialised world, the pharmaceutical industry is the largest remaining consumer. It uses CFCs as a propellant in "metered dose inhalers", mainly for treating asthma.

The EU has allowed European pharmaceutical companies to consume 7,548 tonnes of CFCs this year (with a further 460 tonnes allocated to other laboratory and scientific uses). But the United Nations Environment Programme recently warned the industry to move more quickly to non-CFC inhalers: it said no new CFC-based products should be launched.

3M, the US materials company, is leading the industry in introducing inhalers powered by HFC-134a, a CFC substitute. Glaxo Wellcome, the largest European user of CFCs, expects to file for regulatory approval for a range of replacement inhalers based on HFC-134a within the next two years, says Margaret Morgan, respiratory products manager.

"CFCs were perfect as propellants, being totally non-toxic and inert. HFC-134a interacts differently with the active drugs," she says, "and every component of the inhaler has to be redesigned." But the general view is that the industry will have weaned itself off CFCs by 2000.

# Mineral's properties prove valuable

Zeolites are big business in the oil industry. They are a class of minerals whose chemical properties make them extremely valuable as catalysts in the manufacture of petrol.

Zeolites occur naturally in volcanic rock and clay-like deposits. They can also be produced synthetically. They consist of a three-dimensional network of silicon and oxygen atoms, with aluminium replacing some of the silicon to form an aluminosilicate.

However, what makes them special is the uniform

distribution of tiny pores throughout their structure. These pores are ideal for selectively absorbing molecules such as the long chain hydrocarbons contained in oil. After absorption the zeolite transforms these large molecules into small chain hydrocarbons which can be used for petrol.

In the 1960s, the amount of gasoline obtained from a barrel of crude oil doubled when the original catalysts were replaced with zeolites. This meant that fewer refineries were needed to

meet the ever-increasing demand for petrol.

A synthetic zeolite, ZSM-5, produced by US Mobil Oil, helped solve New Zealand's fuel problem. New Zealand has vast reserves of methane gas but very little oil. Chemists can easily transform methane into methanol, which is then converted to gasoline by treating it with ZSM-5.

BP and its US associate, United Oil Products, are developing a new process involving zeolites, which converts propane and butane to high quality fuels.

This will mean lead-free petrol can be produced more cheaply.

Today, chemists are able to control the size of the pores in zeolites and thus select the molecules which they absorb. Zeolites have replaced phosphates in many washing powders, acting as water softening agents. They can be used to absorb poisonous gases such as ammonia and hydrogen sulphide, and are widely used in the treatment of sewage.

Carol Jones

\* Waste and Waste Water Treatment Chemicals UK, July 1996, MSI Marketing Research for Industry. Tel: +44 (0) 1244 631186.

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FT Surveys

مكتبة العربي

While products made with chemicals can help conserve natural resources, they also cause pollution

# Hidden fabric of modern life

Jenny Luesby finds synthetic products save on consumption of valuable natural resources

It would be hard to find a factory product that does not contain, or has not been treated with, synthetic chemicals. Yet the chemicals industry has a tough time presenting manufactured goods as a benefit to society.

It is not that consumers do not enjoy sleeping in beds, under quilts, next to bathrooms or indulging in countless other activities which depend on chemicals. They are the hidden fabric of modern life: everyone uses them and no-one notices them.

At the same time, goods made from chemicals are attacked as either superfluous - a redundant array of cocktail twizzle sticks and anti-aging creams - or inferior to the environmentally friendlier natural alternatives.

In many areas, the contribution of chemicals defies both these judgements. Nowhere is this more so than in housing. In the US, a new house typically contains chemical building products worth \$12,925, or just under 40 per cent of the total. These include the plastics used to make pipes, gutters and sometimes window frames, as well as chemically derived roofing, paints, sealants, insulation and adhesives. In all these areas, plastics and chemicals can substitute or supplement scarce traditional resources," says the Association of Petrochemical Producers in Europe.

For example, in the US, about 82 per cent of new roofing is made from materials such as fibreglass, asphalt and man-made rubber, according to the US Chemical Manufacturers Association. A wholesale switch to natural roofing would thus increase the pressure on the world's clay, slate and wood supplies five-fold. Even then, chemicals would be essential.

In post-war Britain, the untreated wood used to make window frames "often decayed within five years", says Chris Coggins of the British Wood Preserving and Damp Proofing Association. With preservatives, service life of wood can be extended for up to 60 years, saving on wood used in construction.

On the heads that burning fossil fuels causes more pollution than any other activity, chemicals also have an environmentally friendly role to play as insulation.

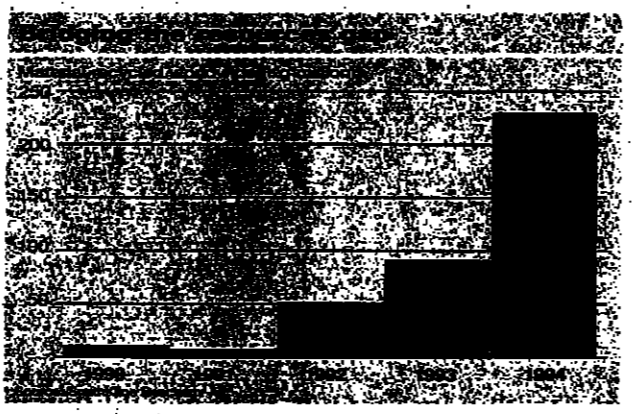
In the UK, the government's Building Research Establishment estimates that insulation could deliver a 40 per cent reduction in domestic energy requirements, which currently generate 43m tonnes a year of carbon dioxide emissions. Such savings are based on a 20 per cent cut in fuel requirements through a 150mm layer of loft insulation and 25 per cent through cavity wall insulation.

Translated into a direct benefit from each unit of chemicals, studies show that 1kg of oil used to produce insulating plastic can save 75kg of oil over 25 years.

"Plastics are not so much part of the problem as they are a solution," says the APPE. "Without the 80m tonnes of plastics produced around the globe every year, mankind would be totally unable to satisfy its material needs without intensifying our environmental problems."



Invisible benefits: everyone uses chemicals and no-one notices them



perth Institute, a German think-tank, believes western consumers will need to reduce their material and energy consumption by 75 to 90 per cent if their lifestyle is to become sustainable.

Many would argue westerners have too many clothes, shoes, cooking utensils, electronic gadgets, toys and ornaments. But how many people could sacrifice nine-tenths of their consumption without pain? But a 90 per cent cut in consumption might not even mean an equivalent reduction in material goods.

Chemicals are already being used to recycle paper, plastics and textiles, as well as to make other goods last longer. They can also produce useful new types of products. Most of the energy consumed in an item of clothing is during its washing.

Hoechst Trevira recently launched an additive for textiles that are rarely washed - such as the inside of training shoes - which kills bacterial and fungal infections. It would not take many more such additives to deliver self-cleaning clothing.

"If human behaviour is to be compatible with the future, we must acknowledge the limits of natural resources and act accordingly," says Jürgen Strube, chairman of German chemicals company BASF.

Like many in the chemical industry, he believes that if a solution is to be found to the problem of overstretched resources, the chemicals industry is likely to play a central role.

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# Tied to a multitude of sins

Products found to cause damage support the case for precautionary measures, says Leyla Boulton

The chemical industry and Greenpeace, one of the world's most vociferous environmental pressure groups, disagree on most issues. However, the industry would be heartily pleased to dispute the claim by Paul Johnson, a UK scientist at Greenpeace, that the sector can be tied to a "multitude of sins" in environmental terms.

These range from global warming and ozone depletion, to water and air pollution. The big differences between the industry and its critics revolve around the extent of the costs paid by society for enjoying the benefits of its products.

A first attempt in the UK last month to quantify various economic sectors' costs to the environment identified the chemicals and man-made fibres industry as the biggest emitter of non-methane volatile organic compounds in the economy.

NMVOCs are organic compounds, generated from products such as solvents, which evaporate readily and contribute to air pollution directly or through chemical or photochemical reactions. The industry accounted for 14.8 per cent of UK emissions of NMVOCs in 1993, according to data compiled by the Office for National Statistics.

Among manufacturing industries, the chemicals and man-made fibres sector was the biggest emitter of greenhouse gases, arising mostly from the burning of fossil fuels, linked to global warming.

Although scientists still have some way to go to pinning down the nature of the problem, the Inter-Govern-

mental Panel on Climate Change found recently that the "the balance of evidence" points to a "discernible" human influence on climate. And governments are sufficiently concerned about global warming to apply the precautionary principle in seeking to reduce greenhouse emissions beyond 2000 when they meet in Kyoto next November.

While energy-intensive industries such as the chemical sector may disagree on the extent of the threat, the industry has been negotiating voluntary agreements with governments to increase its energy efficiency. This both reduces energy costs and cuts greenhouse gas emissions.

The industry is less prepared to concede responsibility on a precautionary basis for fears about chlorine and so-called gender-bending chemicals. Chlorine, familiar for use in water treatment, is an important intermediary in making thousands of other compounds ending up in widely used products such as PVC.

Environmentalists are campaigning for the phasing out of chlorinated compounds on the grounds that they generate dangerous byproducts such as dioxins and mercury both through manufacturing processes and the waste stream.

Alan Watson, senior industrial pollution campaigner at Friends of the Earth, argues that "the main threat from organochlorine compounds is their potential for disrupting hormones at extremely low concentrations".

But because of its importance to chemical manufacture, the industry has been fighting back with a campaign to resist calls for blanket bans on chlorine. As Dow Chemical, the US chemicals giant, said in its 1996 environmental report: "because chlorine plays such a vital role in Dow's

production mix, we take these allegations seriously". But Dow, in many ways a trailblazer in industry's efforts to clean up its act over the past decade, argues that concerns should be focused only on compounds proven to be persistent, toxic and bioaccumulative. Examples include PCBs, chlorine byproducts from pesticides - banned after they were found to be accumulating in the food chain, harming human health.

However, the industry's past history of producing products which have subsequently been found to cause damage undermines its well-argued resistance to more radical interpretations of the precautionary principle. Its past sins include CFCs, used as coolants, which are now being phased out, blamed for eating away at the planet's protective ozone layer. And as the more forward-looking chemicals manufacturers recognise - prompting billion-dollar investments in reducing pollution and waste - any costs to society ultimately bounce back on the industry.

A survey conducted this year for the British government found the chemicals industry in 1994 was the biggest spender on waste abatement, the second biggest spender on air pollution control and the third biggest spender on water pollution abatement.

Allstar Nisbet, chemicals analyst with UBS, the Swiss investment banking group, argues that "the biggest threat to the industry as a whole is cost of compliance with environmental legislation". Alan Carr, of Leigh, Day & Co, a London law firm specialising in environmental litigation, takes this warning a step further. He says the chlorine industry, already under siege from dioxin law suits in the US, risks becoming litigators' "number one target" worldwide unless it moves fast to reduce its costs to society.

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**4 THE CHEMICALS INDUSTRY: GUEST COLUMN**

**Opinion: far stronger incentives are needed to reduce the environmental damage caused by chemicals**

# More gain, less pain

Scott Barrett is associate professor of economics at the London Business School

Chemicals have done much to improve our quality of life. But they have done as much to make it worse. That they have done both is inevitable. But the fact that the advantages of their use are equally balanced by the harm they do is not inevitable. We should be able to get more benefit from chemicals with less associated harm.

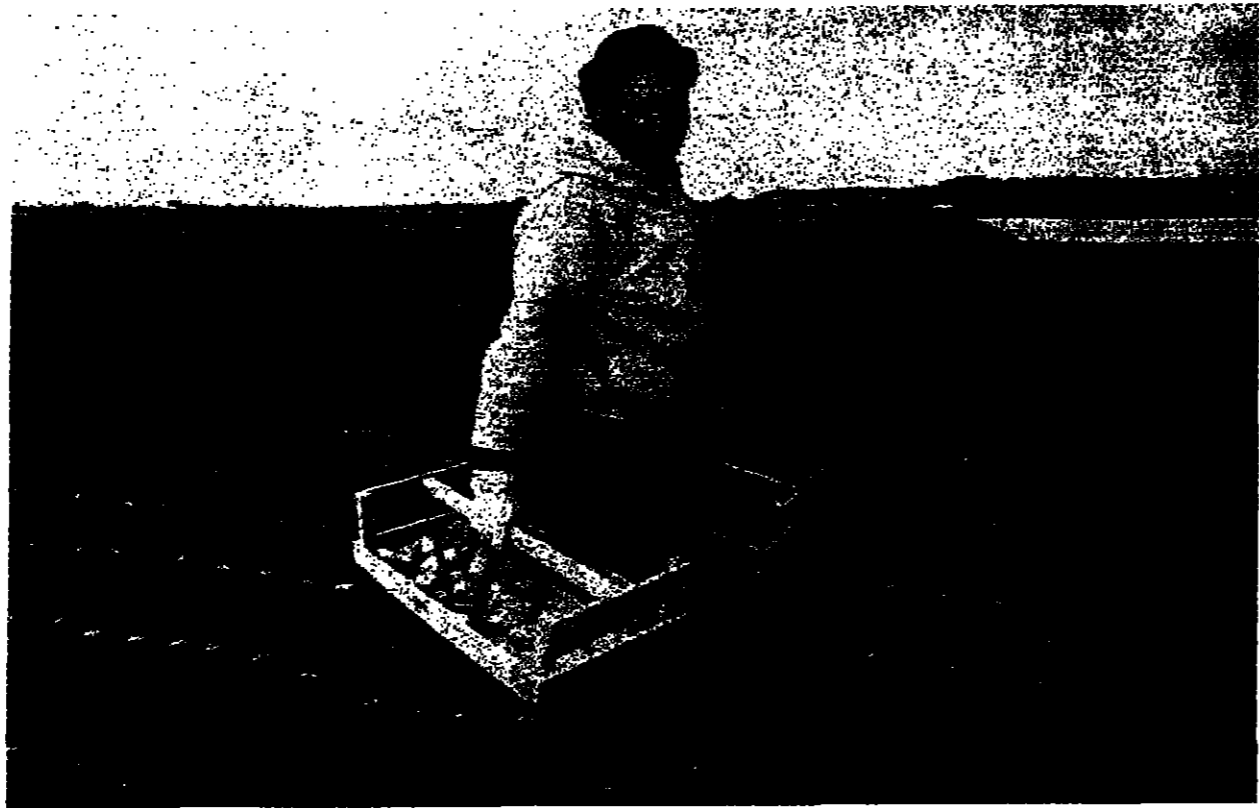
The chemical industry does not set out to harm people or the environment. Its aim is to produce goods that improve people's lives and in this it has succeeded - if it had not it would not remain in business.

The harm done by chemicals is rather a consequence of the fact that those producing and using chemicals have little or no incentive to take account of the effect of their actions on others or the environment.

A farmer has every reason to think about the consequences of spraying his crops with a pesticide on his own prospects. But he has little reason to consider the consequences for nature or the quality of the drinking water somewhere downstream. Virtually all those who would benefit from his pesticide are strangers to him.

Moreover, his actions alone are likely to have little effect on the environment; damage usually arises from chemical use by a large number of people over a considerable period of time. So the incentive for the individual to refrain from chemical use is low.

To improve on this state of affairs requires intervention by a visible hand: government. Chemical users with even the best intentions need to have their practices co-ordinated. Users guided by self-interest, however, need more - their incentives



The user: he needs a good reason to stop using harmful pesticides on his crops

must be altered. Government must also alter the incentives facing manufacturers. Even if a manufacturer voluntarily stops making a pesticide it knows is environmentally destructive, ceasing production will not necessarily be of overall benefit, for the pesticide does good as well as harm.

But supposing careful cost-benefit analysis demonstrated that people and the environment would be better off if the pesticide were no longer used.

The company might develop a substitute product, one as effective as the original in controlling pests but without the harmful environmental side effects. If the manufacturer could recoup its R&D costs and bring the substitute to market at a lower price than the original pesticide, it would need little persuasion to do so, as users of the original product

would have every reason to switch to the new one. More often, however, environmentally-superior goods are costly to develop and manufacture. And without an incentive to pay more for a substitute which principally benefits others there will be no market for the superior substitute and hence no incentive for a company to make it.

If all manufacturers stopped producing the original product, however, then a market for a substitute would be created automatically. Users would be willing to pay more for the new product once the old one were no longer available. This would create an incentive for the chemical industry to develop a more environmentally superior substitute.

The logic of this argument leads to what may seem a startling conclusion: the blame for much of the envi-

ronmental damage caused by chemicals does not lie with the producers or consumers. It lies with government.

Of course, firms and users are not always virtuous. Some break the law. Some are negligent. But systematic failure to protect the environment adequately must be traced to the lack of incentives for producers and consumers to take account of the effects of their actions on the environment.

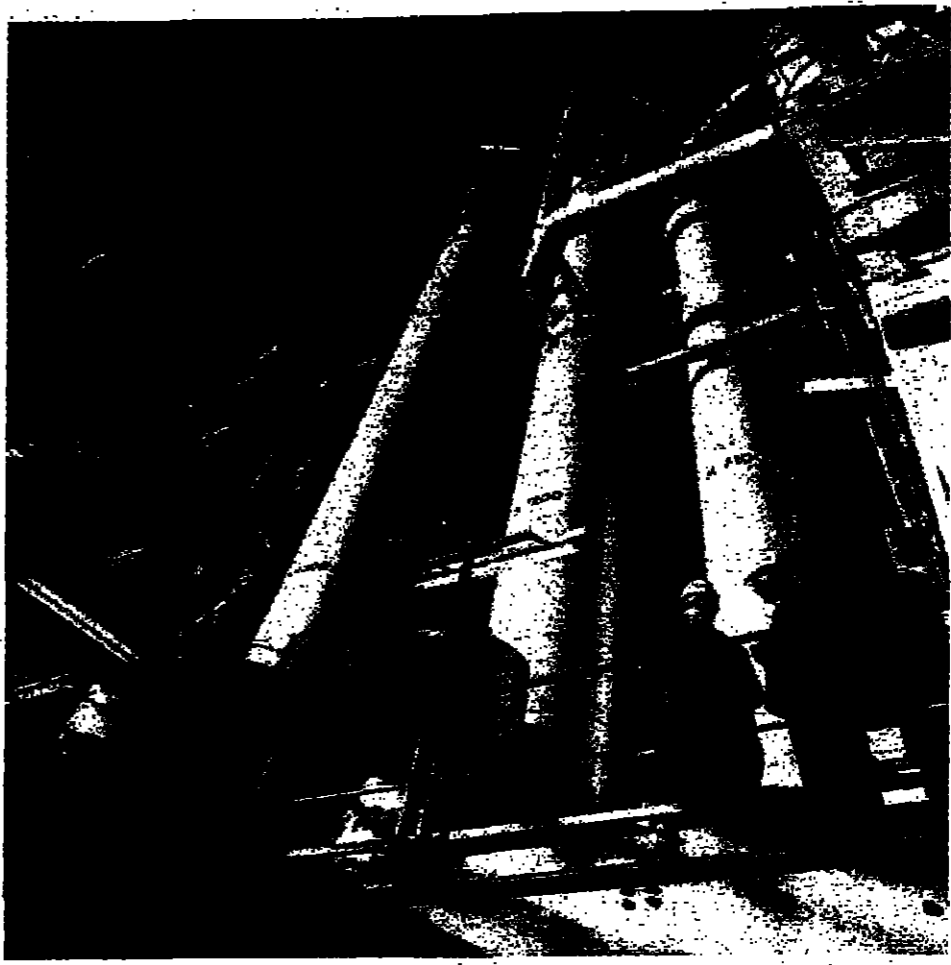
A trend in recent years has been for companies to seek to improve their environmental performance voluntarily and to be seen to be doing so. While this is a positive move, if the commercial forces acting on companies do not reward better environmental performance then such unilateral actions will have little effect. Nor for similar reasons will the "green consumer" make much of a difference. Signifi-

cant change requires a wholesale restructuring of incentives, and this can only be done by government.

Governments do not need to regulate more. They should regulate better. More precisely, they should regulate so as to create incentives for manufacturers and users continually to innovate.

Most environmental policies stifle rather than encourage innovation. Before a chemical compound can be manufactured and marketed it must pass certain toxicological and other tests. Maximum concentrations of the chemical are also regulated. This approach offers a measure of protection to the public but it provides no incentive for firms to develop chemicals that are yet more environmentally friendly or products that use these chemicals in even smaller concentrations.

Similarly, regulations enforcing use of an available technology - such as the catalytic converter - offer little incentive for firms to search for better ways of reducing emissions.



The manufacturer: companies need incentives to develop environmentally friendly products

What is needed is strong competition in the development of environmentally-superior technologies. The tremendous advancements in chemicals came about because users wanted better products and because competition compelled manufacturers to deliver better products to avoid losing market.

Environmental regulations should create equally strong incentives but with the goal being to meet the needs of environment and not just those of the consumer. Firms will not make the required investment in R&D, however, unless they can expect to earn an adequate return. If innovations could be quickly copied by rivals, firms would never

carry out the huge investments needed to produce them. Environmental regulations should give manufacturers some assurance that good, environmentally-superior products will find a market.

This is hard to accomplish. Electric cars relying on chemical batteries have never found a large market, but this is partly because not enough electric cars have been produced.

The state of California has sought to change this by passing legislation requiring that, by 2003, 10 per cent of the cars sold in the state produce no emissions. This, it seems, could create the required incentive for innovation. But if by 2003, the car industry does not have an electric car to sell, will the state really enforce a law which prevents the auto companies from selling all other cars that year? Chances are that legislators

would quickly revise the law.

But the car manufacturers could anticipate this, too, and would thus be unlikely to invest as much in R&D as they would if the government were committed to its plan.

The credibility of government promises are thus crucial if companies are ready to invest in environmental R&D. The record in Britain is uneven. For example, believing that the government would keep to its schedule of landfill standards in the 1990 Environmental Protection Act and apply them across-the-board, a sophisticated waste company invested in advanced disposal technologies. The government then postponed the planned regulations and refused to apply them to existing landfills. The share price of the firm tumbled and its chief executive was sacked.

## Pfizer forum

Parallel Trade and Comparative Pricing of Medicines: Poor choice for patients?  
 DR PATRICIA M. DANZON

Government strategies to limit drug reimbursement expenditures by "importing" savings from countries with lower prices are best policy and have led to innovation, according to a prominent health economist.

Drug prices have traditionally differed substantially across countries, reflecting differences in regulation, insurance coverage, medical practice, exchange rates, and other factors. Meaningful comparison of drug prices in different countries is technically problematic, because of vast differences in the range of drugs, forms, strengths and pack sizes available in different countries.

Nevertheless, in recent years, governments in countries with relatively high prices have been increasingly attempting to reduce their own drug expenditures by taking advantage of lower prices in other countries. Two strategies are employed to that end. The first relies on cross-national price comparisons as a benchmark for regulating domestic prices, a policy that has already been adopted by several countries and is being proposed by others. The second strategy is to permit wholesalers to import drugs purchased abroad at lower prices. Such parallel importing is growing in Europe and threatens to expand significantly, as traditionally low-priced countries join the European Union.

Trade normally increases consumer welfare, and it is on this basis that the European Commission has supported parallel imports. However, the necessary conditions for trade to enhance social welfare are violated in the case of parallel trade in drugs. The lower prices in the exporting country reflect greater regulatory leverage, not superior economic efficiency or lower real costs - indeed, parallel trade adds costs of repackaging, transportation etc. Moreover, because prices are regulated, any savings often accrue to middlemen rather than being passed on to consumers.

The exporting of regulatory leverage from one country to another is particularly harmful when applied to innovative pharmaceuticals because it undermines the basis of paying for R&D. The pharmaceutical industry is more research intensive than any other industry. R&D is roughly 14-17 percent of current sales. But R&D accounts for about 30 percent of total costs, if all costs are discounted to present value at the time of launch.

The cost of bringing a new chemical entity to market is roughly \$350m (in 1993 dollars).

The dilemma posed by these high R&D costs is twofold. R&D is a global joint cost - that is, the cost is the same no matter how many consumers worldwide use the drug. Since R&D costs cannot be rationally allocated as a direct cost of serving a specific country or consumer group, there is a strong incentive for each country to free-ride,

endorsement of parallel importing and cross-national price comparisons to equalise drug prices across countries, so that prices should be uniform. In fact, economic theory implies that charging different prices to different users is optimal and necessary to achieve the appropriate rate of R&D - the rate that consumers are collectively willing to pay for. Healthcare consumers differ greatly in their ability and willingness to pay for innovative medicines. If all are charged the same high price, then low income countries will be unable to afford innovative medicines, even though they would have been willing to pay the marginal costs of serving them. But if everyone pays the same low price, then R&D investments will target only the most common medical needs where high volumes can offset low prices. In the long run, consumers will be deprived of innovative drugs that they would have been willing to pay for, had differential pricing been permitted. Such differential pricing is commonly permitted in other industries with high joint costs, such as utilities and airlines.

Under any uniform price, global revenues and hence R&D will be lower than with differential pricing. Policies that enforce uniform prices across national borders - either indirectly through parallel trade or directly through comparative price regulation - are therefore bad policy for consumers. Patricia M. Danzon is Galla Melt Professor of Health Care Systems at the Wharton School, University of Pennsylvania, and an adjunct scholar at the American Enterprise Institute in Washington, D.C.

allowing others to pay for the joint R&D costs. This free-rider incentive is exacerbated by the fact that R&D and other significant fixed costs are sunk by the time that price is negotiated. Manufacturers rationally continue to supply existing products as long as price covers the marginal costs of production and distribution. However, in the long run, if prices are inadequate to pay for the joint costs of R&D and other sunk costs, the revenues will not be there to develop new drugs.

R&D is of course not unique to pharmaceuticals. Patent protection is the normal mechanism whereby innovators recoup their R&D investments. However for pharmaceuticals, the value of patent protection is constrained by price regulation in many countries, as governments attempt to control public health budgets. As monopoly purchasers of drugs, governments face a strong temptation to force prices down to marginal cost. But if every country pays prices only sufficient to cover their marginal costs - either through direct regulation or by "importing" low prices through parallel imports and cross-country price comparisons - then no one pays for the common costs of R&D. At the limit, if everyone pays only the short run marginal cost, the short-run could be as high as 50-70 percent of total cost.

A second fallacy underlying policymakers'



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### The Petrochemical Industry

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Benefit or cost? Opposing views on whether the industry is good or bad to mankind and the world

Senior campaigner at Friends of the Earth Alan Watson says that the industry has a lot to answer for

# Prescription for disaster

Imagine the outcry if it had been discovered during the cold war that the USSR had been secretly contaminating our food and water supplies with substances that were hard to detect but which disrupted our immune systems, decreased our fertility and reduced our intelligence. Imagine further that the contamination had been so effective that scientists were discussing whether it was still safe to breast feed babies; why the incidence of so many types of cancer was rising; and whether our long term capacity to reproduce was in danger. The whole population would have been up in arms. Unfortunately all of those things are true but it is not the old cold war enemies that are to blame. The culprit is the modern chemical industry.

The chemical industry has a lot to answer for: huge accidents, such as Seveso, Bhopal and Flixborough are now household names. But the real damage has been done well away from public and media scrutiny. In 1978, Occidental Petroleum's director of Health and Safety wrote a memo asking for an estimate of the compensation costs likely to arise from people exposed to the toxic chemical DBCP who became sterile or got cancer. "Should this product still show an adequate profit meeting corporate investment criteria, the project should be considered further," he said. It would be nice to think that such attitudes were behind us. Sadly, they are not.

Friends of the Earth receives many phone calls and letters from people whose lives are blighted by discharges from local chemical works or their waste disposal sites. Indeed, surveys show that 90 per cent of the population are "worried" or "very worried" about chemicals in the environment. People are also disillusioned with the official regulators, who are perceived to have cosy relationships with the corporate polluters and little interest in the adjacent communities. The publication of Our Stolen Future earlier this year provided a focus for



Alan Watson: the battle lines have been drawn

such concerns by clarifying the connections between industrial chemicals and human health. As a result, the chemical war is beginning, with the public, environmental groups and a rising number of scientists, medics and environmental lawyers facing an industry that is refusing to accept the imperative of urgent and radical change. The chemicals industry only really took off after the second world war when Germany's chemical technology became available to British and US companies. Once chemists learned how to make new molecules on demand, success required only marketing and gloss to convince consumers they needed all manner of unnatural items, such as plastic raincoats, low calorie drinks, throw-away razors, and lawn mowers. Sprinkled among the glitz were a few genuine advances, such as antibiotics, but everything was bundled into a single package called "the modern way of life" and people bought the whole thing unquestioningly. Meanwhile, the new chemical technologies were marketed as if they represented nothing new. Chemical wastes were handled as factory wastes had always been handled: thrown into the river, or buried in a shallow pit behind the works. The chemists who developed the new products recognized that the new molecules were radically different - much more dangerous and long-lasting in the environment - but corporate accountants held control and the chemists followed. The inevitable consequence was the massive production of toxics which contaminated every corner of the planet, causing cancer, birth defects and genetic damage, disrupting animal nervous systems and stressing the stable functioning of ecosystems. It was a prescription for disaster, which has unfolded as global warming, ozone depletion, intercontinental acid rain, increasing cancer and asthma, children contaminated with brain damaging lead, falling sperm counts, thousands of leaking chemical dumps and growing mountains of radioactive debris. Industry maintains that it can carry out business as usual. It has sponsored local nature reserves, renamed divisions "EcoSafe" and used recycled paper for environmental statements. But our experience at Friends of the Earth is that it still operates behind a cloak of secrecy, delays admitting accidents and is slow to adopt cleaner technology and phase out toxics. Nevertheless, the battle lines have been drawn and these are not battles that industry can win. Mothers living close to chemical factories are not going to stop worrying about the health of their children until they have achieved real change. Their agenda varies from group to group, but there are several demands in common:
 

- The principle of "no dumping" or "zero discharge" of toxic, persistent and bio-accumulating chemicals.
- Greater transparency and better access to information. In the United States, the Community Right to Know Act which requires companies to provide data about discharges into the environment has been a tremendous success.
- An end to the deregulation of the chemical industry. As John Gummer, environment secretary, has said:

"Voluntary adherence has a superficial attraction precisely because it is not demanding."

The regulation of chemicals by classes rather than individually. Last year the 10 millionth chemical was recorded by the American Chemical Society's Chemical Abstracts Service computer based registry. To assess each of these chemicals individually would take hundreds of years. But there are classes of chemicals, such as organochlorines - a family that includes dioxins, DDT, PCBs and CFCs - whose dangers have already been highlighted. The replacement of "risk assessment" with "alternatives assessments" which would ask wider questions about risk. Risk assessment, used to justify discharges into the environment, is more of an art than a science when so little is known about the chemicals involved. All this leads to the fundamental questions of who should control production decisions in industry: what products should be made, using what raw materials and employing what processes? Never before has the public been forced to debate this fundamental question. Massive pollution demands it now.

Robin Paul, president of the Chemical Industries Association and chief executive of Albright & Wilson sees chemicals as fundamental to progress

# Solutions with potential

Chemicals have been intricately linked with human development throughout the ages. Their potential to improve our quality of life is as exciting now as it has ever been. Indeed, solutions to the physical, medical, nutritional and environmental problems the world faces will only be found with chemistry and chemicals.



Robin Paul: the power to improve our quality of life

The industrial production of chemicals has existed for little more than 150 years. But it is now a global industry with sales of about £1,000bn - equivalent to the GDP of the UK and Belgium combined. Europe is still the world's largest producer of chemicals. In 1994, the EU accounted for 29 per cent of world output, compared with 26 per cent in the US and 16 per cent in Japan. In the UK, the chemicals industry has grown twice as fast as total manufacturing, with estimated sales last year of £39bn and 236,000 employees.

It is the country's biggest manufacturing export earner. With exports amounting to £21.3bn and imports to £17.3bn, it earned a trade surplus last year of £4bn. It also receives royalty income from overseas that is more than three times its payments; whereas manufacturing industry as a whole pays out more than it receives. Meanwhile, each man, woman and child in Britain consumes about £500 worth of chemicals a year. For the average household, this includes about £6 a week on chemicals in food drink and tobacco, £2.10 on clothing and footwear and £4.75 on chemicals for health and personal care. Housing and household goods account for another £5, while the chemicals used in motoring, travel, fuel and telecommunications cost £3.50. Finally, the chemicals in sports and entertainment add £3.65. This weekly bill has grown twice as fast as GDP, with UK consumers spending 16 per cent more on chemicals in real terms than they did five years ago. Much of this growth is based on new chemicals that are often more effective or kinder to the environment. Many are used during the manufacturing process.

However, chemicals can also figure large in the final product. Televisions are a prime example. Chemicals make up about a third of the weight of a television set, and about a quarter of the value. Many of these are volatiles - high impact polystyrene for the shell and resins for the circuit boards - but others are not. The tube itself contains more than 20 chemicals, all minute in volume and low in cost, but every one essential to the high performance of the product. Without the rare earth derivative yttrium oxy sulphide there would be no reds in the picture. Another important example of how chemicals can improve the quality of life is shown by the work of Professor Bill Bonfield in London, who has produced a polymeric, artificial bone material called Hapex - a composite of polyethylene and a ceramic mineral, hydroxyapatite, used to make hip and other bone replacements more permanent. Expect could save the NHS more than £30m a year by eliminating revision operations, which cost £4,400 each. About one in five of the annual 40,000 hip replacements falls within a

few years. Clearly a manufacturing operation as large as the chemicals industry cannot exist without having an impact on the environment. However, the industry has been taking great pains to improve its environmental performance. Energy consumption per unit of chemical output has halved over the past 20 years, during which time domestic energy consumption has increased by 11 per cent and energy consumption in transport has risen by 73 per cent. The discharges of Red List substances (which are of particular concern if discharged into water or sewers) monitored by the Chemical Industries Association have been reduced by 89 per cent since 1990. Even more importantly, many of the solutions to environmental problems have involved chemical innovations. Examples range from biodegradable detergents to lead-free petrol. The UK industry spends £2.5bn a year on R&D and close to £2.5bn on capital expenditure. Much of this spending is directed at new products and processes to improve our quality of life and reduce the impact of

chemicals on our environment. One of the benefits of the government-inspired Technology Foresight initiative has been to focus our attention on innovation and creativity. It has led to an unprecedented pooling of ideas and knowledge on future needs. It is already clear that chemicals, chemistry and their related disciplines will be at the forefront in satisfying those needs. There are some exciting possibilities. Cheaper and easier sea-water purification will help avert the potentially destructive pooling of ideas which some are already forecasting as populations expand and rivers are dammed and diverted. Lightweight batteries and fuel cells using advanced chemical techniques, both the subject of recently announced breakthroughs, are set to transform the availability of power for vehicles and mobile equipment. By disconnecting power generation from its point of use, both noise and air pollution can be reduced. Chemicals are also set to lower the cost of transport in many other ways through improved vehicle construction techniques, lower vehicle deadweights, lower capital costs, longer service intervals and more efficient use of fuel. Liquid crystals illustrate the ability of chemicals to turn physical effects into visible displays, and in the not-too-distant future we can look forward to many new uses of liquid crystal technology coupled with increased exploitation of fibre optics. One example is flat screen displays which will give space savings in homes and workplaces. Another is a liquid crystal technology patented in America that will allow consumers to change the colour of their car at the press of a button. Looking further ahead, molecular switching, through which individual chemical molecules can be switched on and off to store and reproduce data, could open up prodigious increases in computer capacity. Of one thing we can be sure: none of it will happen without chemicals.

Cost benefit analysis: by Jenny Luesby

# Framework for decisions

Assessing environmental needs against economic ones is controversial

Policy makers face a daunting task in reconciling the demands of environmentalists, who relate their calls to the future of the planet, and the chemicals industry, which builds its case around economic well-being. Neither case can be dismissed, yet balancing environmental needs against economic ones is fraught with difficulty and highly controversial. Cost benefit analysis (CBA) is a framework for considering both sets of needs in parallel and as such has become standard practice for some regulatory bodies. In the US, CBAs are used for any regulation anticipated to have an impact on the US economy of more than \$100m. In the UK, the Health and Safety Executive uses the method routinely, as does the Department of Transport. A CBA generally assesses the economic costs of banning a chemical on one side of a balance sheet, and the environmental gains on the other. The first step to establish a baseline. In the US, the Environmental Protection Agency begins by looking at the uses and substitutes for a product, on the basis that if something can easily be substituted, the gains from its existence may be marginal. The assessment that follows may be quite simplistic. For example, a recent British government and industry paper on cost benefit analysis, cites a CBA carried out for tributyl tin (TBT).

This chemical is an ingredient in wood preservatives and marine anti-fouling paints. Risk and Policy Analysts, a UK consultant, recently estimated the proportion of wood preservatives using the ingredient. They then multiplied the price difference between TBT preservatives and TBT-free preservatives by the amount of wood that needs to be treated in a year, to arrive at a loss to producers from banning TBTs of \$300,000. Similarly, for anti-fouling paints, which reduce the number of times a boat needs to be painted, they computed the cost of extra drying and extra paint and added an increase in fuel costs as a result of the drag caused by marine life clinging to the boat. This calculation generated an annual cost of £10m from a ban, as well as a one-off conversion cost of \$2m. Meanwhile, the environmental losses from using TBT were assessed as insignificant in wood preservatives, because of the low level of release. But anti-fouling paints have been shown to cause severe harm to marine life and to the viability of shell fisheries. The political judgement comes in assessing whether £10m in the first year, and £10m thereafter is a reasonable price for preventing the harm to shellfish. In this case, the commercial gains for shellfish farms from a ban could also be assessed. But normally, authorities seek to place a monetary value on the wider environmental implications of a measure before deciding whether to proceed. This valuation is the most controversial element of CBAs. In the UK, the Department of Transport's decision to

place a value on a statistical human life that new close to £800,000 caused initial consternation. However, the figure itself, which in this case is also used as a benchmark by the Health and Safety executive, is a political judgement and not inherent to cost benefit analysis. In effect, the figure represents an effort to prioritise measures. A ranking system could just as easily be used, with a death valued more highly than an injury, the use of a non-renewable resource ranked above a renewable one, and pollution changing the global climate above a bad smell. Without CBAs this would require impossible judgements at the level of specific measures. By translating the big picture into a series of elements, such as lives lost and resources depleted, CBAs provide as much empirical support as possible for judgements on the importance of a measure. However, some critics of CBAs argue that the issue is not how environmental losses are valued, but that they are valued at all. The precautionary principle, a tenet for many environmentalists, dictates that any chemical which might be dangerous should be banned until it is proven otherwise. This makes economic costs irrelevant, as well as any attempt to prioritise environmental losses. One problem with this position is that it runs counter to human behaviour. Humans have always been willing to take risks with the unknown to secure benefits. Even where risks are understood, people take them, by eating, crossing roads and going out in the sun. CBAs are merely formalising calculations of costs and

benefits that every individual makes constantly. In all this leads to the fundamental questions of who should control production decisions in industry: what products should be made, using what raw materials and employing what processes? Never before has the public been forced to debate this fundamental question. Massive pollution demands it now.

## THE WORLD WOULD SLOWLY GRIND TO A HALT

SHIPS would simply rust away. AIRCRAFT could come apart at the seams. FOOD AND DRINK would be spoilt without tubes. TOOTH PASTE would miss their inhalers. ASTHMA SUFFERERS still be wearing tin helmets. TEABAGS tinting and security films might not be so advanced, and we would not be enjoying the benefits of softer, stronger and cleaner fibres for distinctive CLOTHING.

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**IN BRIEF**

**Lehman suffers earnings setback**

Lehman Brothers, the first of the US investment banks to report third-quarter earnings, said net income fell to \$77m from \$106m in the second quarter. The result compared with \$71m in the third quarter of 1995. Page 17

**Tobacco reveals bid plan**  
Tobaccolera, the Spanish tobacco company, yesterday raised the stakes in the contest for control of Tabacalra, its Portuguese counterpart, by proposing the privatisation of 100 per cent of the group instead of the 60 per cent planned by the government. Page 15

**Acquisition helps Aux advance 53%**  
Aux, one of France's largest insurance groups, yesterday reported net income up 52 per cent to FF1.96bn (\$296m) for the first six months of the year after consolidating in its results National Mutual, the Australian life insurer in which it acquired a controlling stake last year. Page 14

**LTCB plans Y100bn had loan write-off**  
The Long-Term Credit Bank of Japan, one of the country's leading lenders, will write off at least Y100bn (\$811m) in non-performing loans in the year to March. Page 16

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FTSE 100	
Index	5,175.50
% Change	+0.10
High	5,240.00
Low	5,110.00
Volume	1,500,000,000
Dividends	£1,200,000,000
Major Indices	
DAX	2,800.00
Nikkei	16,000.00
Hang Seng	1,000.00
Commodities	
Crude Oil	\$18.50
Gold	\$380.00

FTSE 100	
Index	+0.10
Major Indices	
DAX	+0.10
Nikkei	+0.10
Hang Seng	+0.10
Commodities	
Crude Oil	+0.10
Gold	+0.10

**Hanson prepares to take his leave**

By Ross Tiesman in London  
Lord Hanson yesterday set the seal on an era of British corporate history by announcing that he will retire from the chair of Hanson on September 30 next year.  
His departure at the end of the next financial year, after 34 years as chairman, was announced as shareholders approved the demerger next week of Imperial Tobacco Group and Millenium Chemicals as part of a five-way split of the once-mighty conglomerate.  
The retirement of Britain's most swashbuckling takeover king at the age of 75 will end more than three decades dur-

ing which Hanson became the scourge of sleepy managements on both sides of the Atlantic.  
Together with his partner Lord White, who died last year, Lord Hanson built a Yorkshire agricultural supplier, the Wiles Group, into Hanson, an international conglomerate with annual sales of £11bn (£1.7bn).  
Both enjoyed jet-set lifestyles - Lord Hanson dated the actress Jean Simmons and was once engaged to another movie star, Audrey Hepburn - while Lord White's stable of race horses funded by the company provoked outrage among shareholders when exposed.  
However, the search for acquisitions big enough to bolster earnings became increasingly tough as the company swelled in size. And Hanson's unsuccessful 1991 siege of Imperial Chemical Industries backfired when ICI investigators exposed Hanson's heavy reliance upon tax avoidance devices.  
Nonetheless, Lord Hanson once more seized the initiative in January this year. Eight days after his 74th birthday, he announced plans to break up the group that he had spent his working life assembling.  
The break-up plan failed to halt the slide in the company's shares, which have slumped from a peak of 253p in 1983 to just 152 1/2p yesterday.  
The failure of the break-up plan to stem the decline provoked sharp questions from one shareholder at yesterday's meeting, Mr Brian Pearn, who holds 140,000 Hanson shares, said the combination of an excessive dividend and asset write-downs had been disastrous for shareholders in the past 16 months. But he was a lone voice of criticism.  
Lord Hanson said he was confident the demerger was the best way forward for the group.  
He said that the dividend "did get a little bit high" and "the business did get so big that it was unable to receive a shot in the arm from big acquisitions." But he insisted: "All

these four grandchildren of mine are going to do extremely well when they are on their own."  
Lord Hanson will become a consultant to the residual Hanson group, largely a building products company, after his retirement. But he said the extent of his involvement was still a matter for discussion with his wife, Geraldine.  
Lord Hanson will remain chairman of the Hanson business until next September. He told shareholders: "Hopefully I shall be able to reduce my duties gradually as I go." Although he will remain a consultant, he said: "I do not want to be a back-seat driver."  
End of a chapter, Page 11

**NatWest faces uncharted territory with 'golden scenario' of \$5bn loan conversion**

**UK bank promises security for all**

For Mr Martin Owen, chief executive of NatWest Markets, the \$5bn corporate loan securitisation announced yesterday, represents a "golden scenario". In his view, it is good for the UK banking group's customers, good for investors buying the securities, and good for NatWest's shareholders.  
Yet the length of time NatWest has spent wrestling over the structure of the securitisation, and the fact that no European bank has beaten it to the punch, indicates that things are not quite that simple. NatWest has reason to await with trepidation the reaction of the 300 large companies whose loans are involved.  
The theory of the deal is compelling. Banks have for a long time been struggling with the uncomfortable fact that lending to large companies is hardly worthwhile by itself. Margins on investment grade corporate loans have fallen below a fifth of 1 per cent because of competition among banks.  
Furthermore, banks have been faced with an impossible task - trying to make a profit from lending to companies which can enjoy a lower cost of borrowing in the capital markets.  
"We have been trying to intermediate for organisations who are better credits than we are. It does not really make sense," says Mr Owen.  
Yet banks do not want to draw what might appear the logical conclusion: to stop lending to large companies. This is because they regard



**Kirch takes on Premiere channel**

By Raymond Snoddy in London and Frederick Stadelman in Berlin  
Kirch is to push ahead with the creation of channel showing exclusive films on its new digital satellite television service, DF-1. The move could, in the long term, damage Premiere, the pay-TV channel with 1.3m subscribers owned by Bertelsmann, the German-based international media group, Canal Plus of France and Kirch itself.  
The decision to turn one of the three film channels on DF-1 into one showing latest-release films reflects Kirch's growing frustration with Bertelsmann, which owns 37.5 per cent of Premiere.  
Kirch wants its new UK partner, BSkyB, to take a stake in Premiere, even though this is likely to raise competition issues at the German cartel office. BSkyB has a 49 per cent stake in DF-1, which launched 19 digital channels in July and has around 5,000 subscribers so far.  
Kirch hopes that showing exclusive films on the new premium channel will help to drive subscriptions forward and gradually lure viewers away from Premiere. The move is also aimed at putting pressure on Bertelsmann to accept BSkyB as a Premiere shareholder.  
Yesterday, Bertelsmann announced its first drop in operating profits for more than 10 years - an 8 per cent fall to DM1.5bn (\$991m) mainly because of high paper prices and poor economic conditions.  
The company made it clear it was concentrating on its free television operations, which are being merged with those of CIT of Luxembourg.  
Mr Mark Wössner, Bertelsmann chief executive, said yesterday the company remained committed to Premiere, which had reached break-even after five years of operation and a total investment of DM700m. In August alone, Premiere added 50,000 new subscribers.  
Mr Michael Dornemann, head of Bertelsmann's entertainment division, said that while he was sure pay-TV would eventually take off in Germany, it would remain a niche business for a while. Within 10 years, it might account for DM2bn of a total commercial television market of DM16bn, he said.  
Bertelsmann is still in talks with other broadcasters about the development of digital pay-TV. Executives said they believed a compromise with Kirch might be reached under which DF-1 would be allied in some form with Premiere. Lex, Page 12

**Trafalgar sale drives Hongkong Land surge**

By Louise Lucas in Hong Kong  
Hongkong Land, the property arm of the Jardine Matheson group, yesterday reported a 148 per cent surge in net profits, from US\$178.2m to US\$445.3m, for the first six months of the year.  
The result includes a \$290.6m gain from the disposal of its stake in Trafalgar House, the UK conglomerate. Stripping out the disposal, Hongkong Land's net profits rose 10 per cent from \$206.8m to \$267.7m.  
Hongkong Land sold its 26 per cent holding in Trafalgar House this year, when the construction, engineering and shipping group was taken over

**Renault in price-cut offensive**

By David Owen in Paris  
Renault, the struggling French carmaker, yesterday launched an ambitious drive to win back lost market share in its home market by offering customers better value for money.  
The company is cutting the price of some cars, offering more accessories with others without corresponding price increases and simplifying its product ranges.  
The changes - which will apply to the Clio, Mégane, Laguna and Safrane models - are to come into effect on October 1. The price cuts will be between 2.1 per cent and 3 per cent.  
Renault said it hoped its move would reduce the gap between sticker prices and actual prices which have come

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COMPANIES AND FINANCE: EUROPE

High paper prices hurt Bertelsmann

By Frederick Stüdemann in Göttersloh
Bertelsmann, the German media group, yesterday announced an 8 per cent drop in operating profits to DM1.5bn (\$991m) for the year 1996-98...

DM20.5bn to DM21.5bn. BMG Entertainment, the television, film and music division, generated sales of DM8.6bn. The book division, which includes publishing and book club activities, had sales of DM6.9bn.

does two-thirds of its business - had been highly encouraging. Music sales in Japan had grown by 50 per cent to DM700m. Music also spurred growth in the US, where sales rose 6.3 per cent to DM5.5bn.

Wössner said Bertelsmann remained committed to Premiere, the subscription television channel which is broadcast using traditional analogue technology and is co-owned with Kirch and Canal Plus of France.

Luxembourg. The resulting company would have sales of DM5bn and be Europe's largest commercial television company.

Full sale of tobacco producer proposed

By Peter Wise in Lisbon
Tabacalera, the Spanish tobacco company, yesterday raised the stakes in the contest for control of Tabacalera, its Portuguese counterpart, by proposing the privatisation of 100 per cent of the group...

EUROPEAN NEWS DIGEST

Deutsche Bank under review

Deutsche Bank, Germany's biggest bank, has been placed under review by Moody's Investors Service, the international rating agency, for a possible downgrading of its triple-A senior long-term debt, deposit and counter-party ratings...

Compart lifts holding in Montedison

By Andrew Hill in Milan
Compart, formerly Ferruzzi Finanziaria (Ferrin), confirmed yesterday it was gradually reinforcing its stake in Montedison, the Italian industrial holding company.

tions expressed by the board, but did not say why it was increasing its holding. However, it is understood that the stake could be increased further - a move which could stir up a new controversy over the structure of the linked holding companies.

with Shell. The group said half-year net profit, based on an estimated tax charge, was L1.06bn - about the same as the equivalent period if the Montell gain was stripped out.

might realise more value for investors. Montedison's shares have underperformed the Milan market since last year's abortive proposal to merge Compart, then known as Ferrin, with Gemina, the Italian investment company.

By 2000, when Bertelsmann says 45 per cent of its sales will come from multi-media, television, film and music, AOL is forecast to have 2m subscribers and sales of DM2bn.

Stet optimistic after 25% rise at halfway

By Andrew Hill
Stet, the Italian telecommunications holding company, increased pre-tax profit by 25 per cent in the first half of 1996 before extraordinary items.

profit of L3.875bn, compared with L3.447bn. Stet - 63 per cent of which is controlled by Iri, the Italian state holding company - said it was expecting the full-year result to be "significantly better" than last year, when the group made a profit of L5.761bn before tax.

Paul Norris of Lehman Brothers in London, who had forecast a 7 per cent increase in turnover. Stet itself controls majority stakes in Telecom Italia, the main domestic telephone operator, and Telecom Italia Mobile, the mobile phone company, both of which are quoted.

Net debt at Stet has come down sharply over the last year from L28,000m at June 30, 1995 to L14,337m on June 30 this year.

The much-delayed sale of Iri's majority stake in Stet is now expected to take place before March 1997. Meanwhile, Iri is working on the demerger and sale of Seat, Stet's profitable publishing arm, and examining the future of Stet's stakes in Sirti, the contracting business, and Italtel, the equipment manufacturing operation.

Tag Heuer increases share offer by SFr150m

By Richard Lapper, Capital Markets Editor
Tag Heuer, the Swiss luxury watch manufacturer, yesterday increased the amount of its forthcoming international share offer by about SFr150m (\$151m), following strong interest from investors.

the decision will increase the overall size of the deal from about SFr450m to nearly SFr600m. Investors have become increasingly enthusiastic about branded luxury goods companies, which are seen to have good growth prospects, especially in Asia.

scribed. Shares in Gucci, the Italian fashion house, have risen sharply since it was floated last year. Tag Heuer said this month it was seeking to sell a total of 1.84m primary shares and American Depositary Receipts. About 70 per cent of these would have been new shares.

through an increase in the size of the secondary offer. Doughty Hanson, the venture capital company, would reduce its stake, from nearly 40 per cent to about 10 per cent.

the flotation. Salomon Brothers and SBC Warburg are joint book-runners of the international tranche and Salomon is also book-runner on the US tranche. Separately, SBC Warburg, Lehman Brothers and Banco Est of Portugal, have been confirmed as global co-ordinators of a global offering of shares in Telecom Comunicações Peseoais (Telcel), the Portuguese mobile telephone company.

Prospectus from Telekom

Deutsche Telekom, the German telecom group which is to be partially privatised in November, will publish a preliminary sales prospectus with further details about one of the world's biggest share issues on October 4. A final prospectus, which will give a range for the final share price, will be published three weeks later.

Further delay for UBS

Union Bank of Switzerland's plan to modernise its capital structure, which has already been delayed by two years because of legal challenges, is likely to be delayed by at least another year. Mr Martin Ebner, the Swiss financier, signalled yesterday he would appeal against a ruling by the Zurich Commercial Court, which had dismissed his case questioning the validity of the decision of UBS's extraordinary general meeting in November 1994 approving the introduction of a single class of share.

GBL advances

Groupe Bruxelles Lambert, the Belgian holding company, posted first-half net profits, excluding minorities, up from BFr3.98bn to BFr4.46bn (\$143m). Earnings per share rose from BFr169 to BFr190.

Lafarge slides 53%

Lafarge, the French construction materials group, yesterday reported a 53 per cent slide in first-half net profits to FF545m (\$107m). The business was hit by bad weather and weak building industry demand. It also lacked the exceptional items that lifted first-half net profits to FF1.15bn in 1995. Sales were static at FF15.9bn, but operating profits fell 26 per cent from FF1.66bn to FF1.23bn.

Navigation Mixte rebounds

Navigation Mixte, the French holding company, posted net first-half profits of FF651m compared with a restated loss of FF65m. Sales fell 2.3 per cent from FF6.242bn to FF6.054bn.

IMI confident

IMI, the Italian banking group, posted first-half parent profits up from L210m to L341.5m (\$224m). It said it expected consolidated 1996 net profits to be stronger than 1995's L522m, although not as big in percentage terms as the 62.4 per cent jump in group net profits recorded in the first half.

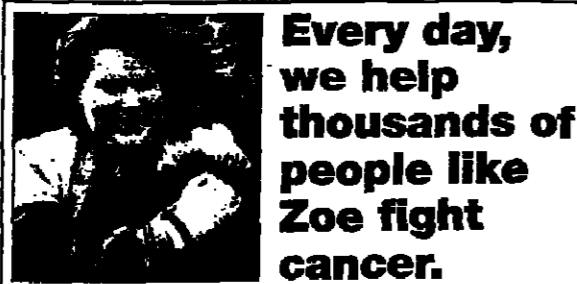
Air Liquide up 1.7%

Air Liquide, the French industrial gases group, posted first-half net profits up 1.7 per cent, from FF1.32 to FF1.34bn. Sales rose 5.2 per cent from FF15.83m to FF16.66m.

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COMPANIES AND FINANCE: ASIA-PACIFIC



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LTCB plans Y100bn write-off of bad loans

By Gerard Baker in Tokyo

The Long-Term Credit Bank of Japan, one of the country's leading lenders, will write off at least Y100bn (\$9.1bn) in non-performing loans in the year to March.

March, it had total non-performing loans of Y1,035bn, and a further Y161bn in loans to companies receiving financial assistance.

the size of its loan book through increased securitisation, a measure aimed at improving its capital adequacy.

India to renew sale of state holdings

By Tony Tassell in Bombay

The Indian government has cleared the way for sale of equity in two state-run companies over the next few months in an attempt to revive its programme of partial privatisation.

ASIA-PACIFIC NEWS DIGEST

Sampoerna behind Astra share rally

Mr Putra Sampoerna, the tobacco magnate, was revealed yesterday as one of the buyers behind the rise in shares of Astra, the Indonesian car-to-plantations conglomerate, in heavy trading this week.

Isetan considers fresh action in Barney's row

By Eniko Tarazona in Tokyo

Isetan, the Japanese department store group, has hit back in its licensing tussle with Barney's, the New York retailer, threatening fresh legal steps against the US group.

stopped paying royalties to Barney's in January last year in violation of the licence agreement. The US retailer demanded \$20m and also called for the revocation of Isetan's interests in Barney's.

when the Japanese retailer turned down requests for money from Barney's. The US group subsequently stopped rent payments on its stores to Isetan, and in January this year filed for protection from creditors under US bankruptcy laws.

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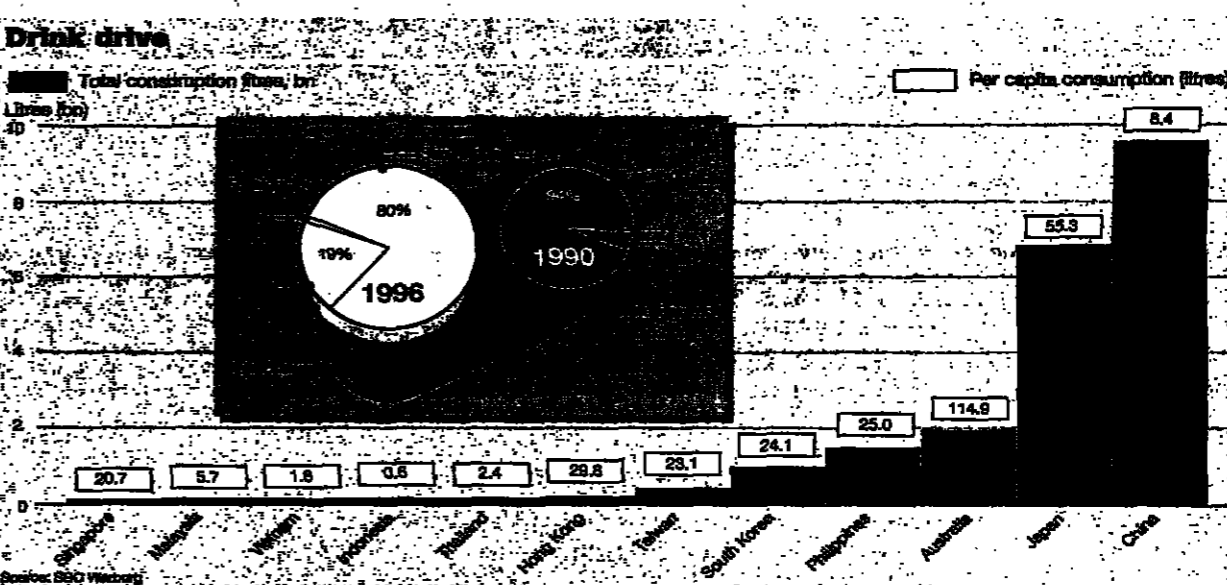
Hanwha Chemical Corporation (Incorporated in the Republic of Korea with limited liability) Notice of Bondholders' Additional Option to Redeem Bonds and Right to Revoke Notices of Redemption.

Tax-weary brewer seeks relief in foreign markets

With sales at home slipping, San Miguel is investing heavily in overseas expansion

The inauguration of San Miguel's new HK\$1bn (US\$129.3m) brewery in Hong Kong this week dovetailed neatly with the Philippine beer group's decision to close its largest domestic bottling plant, near Manila.

volumes in the Philippines since 1990, San Miguel is also plagued by tougher competition from its only genuine domestic rival: Asia Brewery. Owned by Mr Lucio Tan, the Chinese-Filipino businessman, Asia Brewery has undercut San Miguel's market share through cheaper brands and creative accounting techniques.



Earlier this month, Congress enacted a "compromise" version which could raise San Miguel's already hefty tax charges. Asia Brewery, meanwhile, will continue to pay lower taxes.

Beer and beverages, including its Coca-Cola franchise and rum subsidiary, account for about 75 per cent of group sales.

The company, which recently opened two plants in China and will shortly open a third is looking to double its China production to 4.7m hectolitres by 1997, and become the largest foreign beer brand in the country by 1998.

first half of 1996, net financing charges rose 165 per cent to 1.3bn pesos.

NOTICE TO HOLDERS OF Daiwa Industries, Ltd. (the "Company") U.S. \$30,000,000 1 1/8 Percent Guaranteed Bonds due 1997.

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Les Echos The FT can help you reach additional business readers in France. Our link with the French business newspaper, Les Echos, gives you a unique recruitment advertising opportunity.

The Financial Times plans to publish a Survey on Mexico on Monday, October 28. The survey will look at the country's economy, politics, financial markets, foreign policy and more.

معلومات الاتصال

COMPANIES AND FINANCE: THE AMERICAS

Third-quarter setback at Lehman

By Tracy Corrigan in New York
Lehman Brothers, the first of the US investment banks to publish third-quarter earnings, has reported a drop in net income from the second quarter.

Five consecutive quarters of higher revenues, the firm said. "After a volatile July and a dead August, Lehman did not have the benefit of improving conditions in September," said Mr Michael Flanagan, an analyst at Financial Service Analytics.

Lehman's third quarter ended on August 31. Since most investment banks are not due to report until next month, their numbers will receive a fillip from this month's recovery. But they may still find it hard to

match an extremely strong second quarter. Lehman's return on equity for the quarter, typically below the industry norm according to analysts, was 9 per cent, down from 13.4 per cent in the second quarter. In the favourable market conditions of the past two years, the best performers in the industry have been achieving 20 per cent or more. Lehman's earnings per share fell to 60 cents in the third quarter, down from 89 cents in the second quarter.

Lehman's share price rose 3% to \$28 following the announcement of the results, which came in slightly ahead of analysts' expectations. The stock has enjoyed a rally in recent weeks, because of renewed bid speculation, but is still cheap relative to the sector. It is trading at a discount to book value of about 16 per cent, while large-cap investment banks enjoy a premium of about 50 per cent.

Loral pays \$712m for AT&T's Skynet

By Christopher Parkes in Los Angeles
Loral Space and Communications is to pay \$712m for AT&T's Skynet satellite services in a deal that sets the scene for sharpened competition between US contenders in the global communications market.

AMERICAS NEWS DIGEST

3Com shares jump as profits surge

Shares of 3Com, the US computer networking equipment manufacturer, jumped sharply yesterday after the company reported higher than expected first-quarter earnings. 3Com was trading at \$68 in mid-session yesterday, up 11 per cent from Tuesday's close of \$66.4.

SCI to review Loewen options

The board of Houston-based Service Corporation International will meet next Tuesday to consider ways of pursuing Loewen Corporation, SCI's arch-rival in the North American funeral services business. Loewen earlier this week dismissed SCI's unsolicited \$2.5bn takeover proposal. "SCI clearly intends to eliminate its most formidable competitor... diminishing the opportunities for independent funeral homes," Mr Ray Loewen, founder and chief executive, said.

Bayer targets Latin America

Bayer, the German chemicals and pharmaceuticals company, said it would invest a further \$126m (\$126m) in Mexico and nearly \$141bn in Central and South America by 2000. Central and South America play "an important part in the group's plans for the future", since the region has potential for sustained and vigorous growth, said board member Mr Walter Wenninger, in a speech to mark the 75th anniversary of the group's presence in Mexico. Bayer already generates sales of 2,44bn pesos (\$324m) in Mexico and employs a workforce of 2,500.

Schering-Plough buy-back

Schering-Plough, the US drugs company, is to repurchase up to \$500m in common stock, depending on market conditions. It said the buy-back decision stems from its strong liquidity and expectations of solid earnings growth. The company has completed eight share repurchase programmes since 1983, buying back the equivalent of more than 162m shares at a cost of \$3.9bn. The company said at the current price it would have a market value of about \$10.5bn. As of June 30, it had 369,678,128 shares outstanding. Merrill Lynch will be sole broker on the transactions.

Corimon sells Argentine unit

Corimon, the Venezuelan paints and packaging company, has completed the sale of its Argentine subsidiary Corimon to Consorcio Bisa for \$3.8m. The sale is part of a restructuring process in which Corimon has shed most of its international assets.

Computervision disposal

Computervision, the US software and services company, has agreed to sell its Open Service Solutions business to an investment group headed by J.F. Lehman & Co for \$125m. On closing the transaction, the business will be conducted under the name of CV Services International. The sale is for \$100m in cash, \$25m in preferred stock in CV Services International, and warrants to buy common shares representing 19 per cent of CV Services International.

Cominco warns of downturn in earnings

By Robert Gibbons in Montreal
Cominco, the Canadian mining and metals group, warned that third-quarter earnings were likely to be "appreciably lower" than the second quarter because of weaker London Metal Exchange prices for copper, nickel and zinc.

Mr David Thompson, president, also cited lower production and average grades at the Highland Valley copper mine in British Columbia, and scheduled shutdowns at the Sullivan zinc-lead mine and Trail Smelter, also in British Columbia.

Analysts expect Cominco's results to be published in the fourth week of October. Earnings before special gains for the second quarter to June 30 were C\$21m (US\$15.4m), or 23 cents a share, against C\$18m, or 21 cents, a year earlier. Sales were C\$399m against C\$353m.

First-half earnings were C\$43m, or 54 cents, against C\$44m, or 58 cents, on sales of C\$806m against C\$762m. In the third quarter of 1995 earnings were C\$22m, or 25 cents, on sales of C\$417m. Cominco, 34 per cent held by Teck, is the world's biggest producer of zinc concentrates. It has base metals operations in the Americas and Australia.

It said recent drilling at the Red Dog zinc, lead and silver mine in Alaska had extended reserves at the Aniakchik deposit. Euro-Nevada Mining, the Canadian mining company, is negotiating to invest C\$50m-C\$100m in the next two years in the royalties of six gold mine projects in the Philippines, Australia and Indonesia as part of its continued expansion.

Pan Am back with low-cost approach

The resurrected airline is aiming for a domestic niche, writes Richard Tomkins

Travellers could be forgiven a sense of déjà vu when the latest US start-up airline takes to the skies this morning. The name emblazoned on the side of the Airbus A300 taking off from New York at 8.00am will be Pan Am.



Pan Am chairman Martin Shugrue (left) at Wednesday's start of trading of Pan Am shares on the American Stock Exchange. The airline starts flying again today.

Nine months after announcing plans to resurrect one of the best known names in aviation history, Mr Martin Shugrue, the new company's chief executive, has at last won permission from the federal authorities to start flying again.

This morning's inaugural flight will leave New York's John F. Kennedy International Airport for Miami. Later today, another aircraft will inaugurate the airline's second route by leaving JFK for Los Angeles. In the weeks to follow, San Francisco and Chicago are due to join the network.

The old Pan American World Airways was an aviation industry legend. Founded in 1927, it was the first airline to operate scheduled services across the Atlantic and the Pacific, and its route network spanned the globe.

The airline, however, met an ignominious end: it collapsed into bankruptcy in 1991 after years of losses. It was also held liable for the Lockerbie air disaster caused by the terrorist bombing of Pan Am flight 103 over Scotland in December 1988. The new Pan Am differs in many ways from the old. It

is tiny by comparison, starting with only three aircraft and two routes; it will serve only the US domestic market; and its low-cost structure places it among start-up carriers such as Southwest Airlines and ValuJet, rather than traditional carriers. Yet there are similarities. Mr Shugrue once worked for the old Pan Am, as did many of the flight crew; the old livery, uniforms and trademarks have been revived; and in spite of the airline's low-cost structure, the new Pan Am will aim to match the old company's quality of in-flight meals and service. It hopes to carve a niche in

the intensely competitive US market by offering full service on long-haul domestic routes at low fares. The New York-Miami fare is \$99 each way, and the New York-Los Angeles price \$199. The fares are unrestricted, at least initially. The strategy has raised eyebrows among some observers. For one thing, the outlook for start-up carriers has soured following the crash of a ValuJet aircraft in May; and the mid-air explosion of a Trans World Airlines aircraft in July brought back memories of Lockerbie. Mr David Stamey, vice-president of Virginia-based Aviation Consulting,

says: "They are going to have some difficulty because they have been counting on the Pan Am name to give them a high awareness profile going into the marketplace. Notwithstanding the fact that Pan Am is a proud old name, after these recent accidents you are just not sure that you are in control of whether people remember it in terms of good memories or bad memories." Mr Philip Baggaley, airline analyst at Standard & Poor's, says: "They seem to be running counter to the usual formula for survival for a new entrant airline, which is to fly narrow-body aircraft on short, heavily-

travelled routes and stay out of the way of the big boys. "Rather, they are flying wide-body aircraft to Los Angeles and Miami, where they are flying right into the teeth of the biggest carriers."

Mr Shugrue says the rate of bookings shows the Pan Am name is remembered in positive terms. "We have taken 7,000 bookings in two days, which is really quite extraordinary."

On strategy, Mr Shugrue says about 30 per cent of Pan Am's passenger traffic will be generated by partnerships it has formed with small and medium-sized international carriers flying into New York and Miami, such as Royal Jordanian, Air India, EgyptAir and Viasa.

This will allow Pan Am to set up a frequent flyer programme, allowing US members to fly to exotic destinations on flights operated by Pan Am's partners. Members of the partners' programmes will be able to fly to US destinations served by Pan Am.

Mr Shugrue is ready for retaliation by the big carriers, but is not particularly worried. "The fact is that, in today's airline business, we are adopting more and more of the economic aspects of a commodity business, in any commodity business, whether manufacturing steel or growing corn, at the end of the day it's the low-cost producer that wins the game; and we are the low-cost producer in this market."

Advertisement for FT Discovery. It features a fisherman catching a large fish. Text includes: "Fed up with fishing for business information?", "FT Discovery. The instant way to hook the information you need.", and contact information for FT Discovery.

Advertisement for the FT World Economy Survey. Text includes: "One Annual Report that will be on every boardroom table.", "The FT World Economy Survey.", and details about the survey's publication on Friday, September 27, coinciding with IMF and World Bank meetings.

Advertisement for Neurosearch. Text includes: "This announcement appears as a matter of record only.", "June 1996", "NEUROSEARCH", "Global Offering of 1,645,877 Ordinary Shares at DKK 170 each", and names of the Global Coordinator and International Lead Manager.

COMPANIES AND FINANCE: UK

Concentric signs former Rover man

By Tim Burt

Concentric, the small instruments and components maker, yesterday pulled off a coup by persuading Mr John Towers, former head of Rover Group, to become its new chief executive.

The 48-year-old engineer, who resigned as Rover chief executive four months ago, rejected several approaches in favour of Concentric, which he described as an exciting growth opportunity.

Although Mr Towers, who received a severance package worth about 240,000, refused to comment on his decision to leave Rover, he said he had wanted to eliminate the "hierarchical trappings" that occur in such a large company.

"I simply wanted to run a smaller business that was looking for growth in terms of expanding its core activities organically and possibly through acquisition." He yesterday underlined his commitment to Concentric by acquiring 10,000 shares at 150p.

Mr Towers will succeed Mr Robert Bruce, who was only promoted to chief executive a year ago. American-born Mr Bruce, thought to have been paid between £125,000 and £130,000 last year, has decided to return to the US for family reasons.

Barratt chairman attacks rivals

By Andrew Taylor, Construction Correspondent

Sir Lawrie Barratt, chairman of the UK's second-largest housebuilder, yesterday criticised rivals, including Bryant Group and Persimmon, for overpaying for recent acquisitions.

His comments drew a sharp response from Mr Duncan Davidson, chairman of Persimmon, which this year launched a £91m rights issue to finance the £180m acquisition of Ideal Homes from Trafalgar House.

Sir Lawrie said yesterday Barratt had estimated Ideal Homes' worth at about £150m, and that Persimmon was risking "committing financial suicide" by paying too much.

His remarks came as Barratt announced a 10.5 per cent rise in pre-tax profits, to £23.1m, in the 12 months to the end of June. He said: "Barratt was the only national builder to increase volume completions, pre-tax profits and earnings per share over the period."

The company wants to increase UK house sales from 7,000 to 11,000 by the millennium, but said it had bought land for expansion rather than pay over the odds for companies which "were only selling because there was a problem".

Persimmon's chairman replied: "Sir Lawrie has done a wonderful job for the housing industry. But he built his business on the back of a great string of acquisitions in the 1970s and early 1980s. Barratt also bought businesses in California which are still making losses."

"I wrote off more than £100m in the early 1990s, mostly as a result of bad land purchases. I would rather pay goodwill for a sound business like Ideal Homes."

"For the £19m we paid over book value we received £55m of tax losses and some very high-quality strategic land, some of which has already won planning permission and is worth substantially more than we paid for it."

Mr Michael Chapman, finance director of Birmingham-based housebuilder Bryant Group, also responded to Sir Lawrie's criticism that Barratt had offered £10m less than the £22m paid last week by Bryant for Admiral Homes.

LEX COMMENT TI/Senior

How do you winkle a good business out of a rather unpalatable group? If management refuses to sell you the bit you want, there appear to be only two options: bid for the whole lot or walk away. This is the conundrum facing TI Group over the much smaller Senior Engineering. Senior's main Flexonics tubes division would undoubtedly fit neatly into TI's portfolio.

Yorkshire Electricity considers buy-back

By Simon Holberton

Yorkshire Electricity is contemplating a £120m (\$187m) share buy-back or special dividend, Mr Tony Coleman, finance director, said yesterday.

Mr Coleman said Yorkshire planned to increase its gearing from about 45 per cent to 100 per cent in the current year. This would release about £120m in cash. "We follow a return of value line," he said.

The move is likely to be controversial with the Labour party which has pledged to levy a windfall profits tax on utilities if returned to power.

Mr Coleman said the company did have a number of outstanding options for the cash, and it was considering a number of investments in generation. Yorkshire already owns 250MW of generating capacity.

"If one or two of the large [generation projects] come through then it would put a different complexion on the use of the cash," he said.

However, utilities analysts who saw the company last week believe that Yorkshire will opt to return cash to shareholders. They expect an announcement near the time of its interim results in mid-December.

Analysts believe the company will struggle to keep its gearing at 100 per cent and that a further "release of value" through a buy-back or special dividend is likely next year.

Yorkshire has a property development portfolio and a substantial shareholding in London, a mobile telecommunications company, which could provide funds for further distributions over and above the promised 7 per cent a year dividend growth.

Revamp blamed for H&C fall

By Ross Tleman

Disruption caused by rationalisation and modernisation at its chain of Harcro's builders' merchants contributed to a decline in first-half profits at Harrisons & Crossfield, a conglomerate.

The closure or sale of smaller sites and the introduction of a new computer system caused operating profits at the 204 Harcro stores to fall from £9.6m to £5.1m (\$7.95m).

That coincided with disruption in the US at the company's Moores chain of timber merchants, based in Virginia, which switched emphasis from retail to contract sales. Profits from distribution of timber and construction materials declined from £12.2m to just £2.7m.

Mr Bill Turcan, chief executive, said: "The steps we have taken to restructure this business are now taking effect and the current results are on an improving trend."

Overall, pre-tax profits for the six months to June 30 fell £2.4m to £94m, on sales down 1.3 per cent to £1bn.



Bill Turcan: seeing the benefits of restructuring the distribution activities

The dividend is maintained at 3.5p, although earnings per share slipped to 5.5p (5.7p).

The chemical and industrial side reported a rise in profit of just £700,000 to £29.3m. Food and agriculture performed well, lifting profits £4.3m to £18.5m.

The company's mailings performed well in a buoyant market, shipping mail for brewing to Asian and South American producers. But the animal feedstuffs manufacturers were hit by the British BSE scare, as dairy farmers cut their purchases of additional feed.

The sale of Harrisons' 54 per cent stake in New Britain Palm Oil to the Papua New Guinea government is expected to be completed on October 3, taking Harrisons out of the plantation business, which contributed £17.9m (£15.7m) to profits.

Table with columns: Company, Period, Turnover (£m), Pre-tax profit (£m), EPS (p), Current payment (p), Date of payment, Dividends corresponding dividend, Total for year, Total last year. Lists companies like Alcon, Barratt Design, BSB Design, Bryon Bros, etc.

PSA PEUGEOT CITROËN 1996 INTERIM CONSOLIDATED RESULTS. Includes financial results table, financial structure table, net sales up 3.0%, outlook for the full year, and cash flow on capital expenditure of 126%.

AEA float is priced at 280p. By Leyla Boulton, Environment Correspondent. The government yesterday announced a price of 280p a share for today's flotation of AEA Technology.

BT and News Intl plan link-up. British Telecommunications and News International plan to launch an Internet service for the home based on material from News International's leading titles.

BTR unit in Chinese venture. BTR's automotive systems group has acquired a majority share in Wuxi CSE, a vibration control joint venture in China.

Australian buy for Daily Mail. DMG Radio Australia, an arm of Daily Mail and General Trust, has made its long-mooted entry into the Australian radio market.

Prudential to take £50m charge. Prudential Corporation, the UK's largest life insurer, intends to take on banks and building societies when it opens for business as a bank next Tuesday.

RESULTS FOR 1995/96. Pre-Tax Profit £10.51m (£10.21m), Increased Dividend 6.6689p (6.4747p net), Property Portfolio valued at £223.1m (£209.5m), Net Asset Value per Share 156p (155p).

Vertical advertisement for MUCKLOW A&J MUCKLOW GROUP plc. A major property investment company based in the Midlands. Includes logo and contact information.

TECHNOLOGY

The idea of diseases specific to a race or a nationality sounds like political dynamite. The explosive news is that medicine already recognises that groups such as north European Jews, black Africans and those whose ancestors lived around the Mediterranean are more likely to suffer from genetic diseases ranging from anaemia to cancer.

Politically correct medicine may yet have the last laugh. As the details of genetic code are unravelled, scientists are discovering that many genetic diseases have geographic variations.

Cystic fibrosis, which principally affects the lungs, for example, is caused by a mutation on a single gene. But the latest research shows that the mutation in German and Danish CF sufferers is different from that in most British and Italian CF patients.

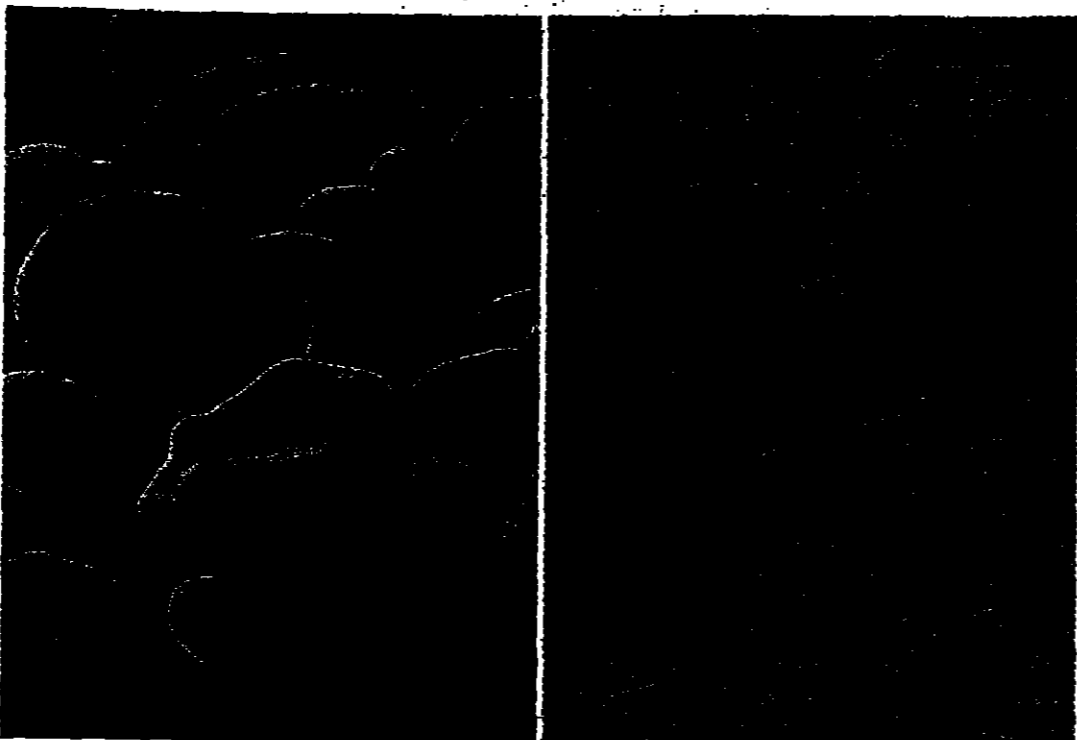
Such observations make the patterns of genetic disease potentially important for everyone. Some of the gene treatments in research depend on identifying the genetic mutation precisely. A way to fix a gene in an Italian CF patient might not work in Denmark.

Perhaps the best known of such diseases is sickle cell anaemia. It is a disorder of red blood cells in which the misshapen cells get stuck in small blood vessels depriving tissues of oxygen. It occurs in one in 500 blacks and almost no one else.

A similar condition is thalassemia, a red-blood cell disease that affects people of Mediterranean and south-east Asian descent as well as blacks.

That these two disease exist at all is a tribute to the dangers of malaria. The damaged cells make the sufferer resistant to malaria. So carriers from malaria-prone regions, which included the Mediterranean until this century, have an advantage over their "healthier" compatriots.

According to Mark Layton, senior lecturer in haematology at Kings College Hospital in London, the effect is so powerful that there are several other minor enzyme deficiencies which have also survived because they offer some protection against malaria.



Shape of life: the characteristic sickle cells (right) compared to normal red blood cells. Science Photo Library

Genetic mutations specific to racial groups are being targeted by researchers, says Daniel Green

# Diseases put on the map

Any cure would probably rely on gene therapy - replacing faulty genes with healthy ones. Blood conditions like sickle cell anaemia are a favourite target because the damaged cells are continually replenished by the body. In principle, if genes are changed in the source of the cells - the stem cells - a steady production of healthy blood cells might be possible.

Gene therapy is still in research and has so far met with very modest success. That is why the research published in the US journal Science earlier this summer caused such a stir.

Scientists at the Thomas Jefferson University in Philadelphia in the US have been able to change up to 20 per cent of the genes in red blood cells that had been affected by sickle cell disease.

carefully crafting the new genetic material to correct the fault. It seemed to be able to change the most basic building block of the gene, a single base pair, with great precision.

This method would have advantages over most other attempts at gene therapy. They involve using genetically engineered viruses to carry the genetic material, with attendant risks of disease, or simply blasting the genetic material into cells (lovingly called biolistics by some scientists) in the hope that it will do something useful.

Eric Kmiec, who heads the team at Jefferson, stresses that his method can only work if the genetics of the condition are understood in the greatest possible detail. "It's not so much the gene but the sequence [of amino acid molecules in the gene]," he says. The method is applicable to

other diseases but "the type of target to look at would be one in which the mutation had been well defined - it has to be known almost exactly for this kind of treatment."

Candidate diseases include cystic fibrosis and Gaucher's disease, an enzyme deficiency, says Kmiec. A company called Kimeragen has been set up in Pennsylvania to exploit the technology.

Some diseases may not be amenable to this approach. One likely to prove difficult is a gene that predisposes women to breast cancer and possibly ovarian cancer.

That means that Ashkenazi women with the BRCA1 gene have about an 80 per cent chance of developing breast cancer over their lifetimes, says Shirley Hodgson, senior lecturer in clinical genetics at Guy's Hospital in London. "That compares with 8 per cent to 10 per cent for other women in Europe or north America."

The problem for any attempt to treat the genes through carefully targeted replacement of the faulty components is that more than 100 different mutations have been found scattered across the BRCA1 gene.

Since a gene's job is to trigger the production of a protein, different BRCA1 mutations generate different proteins. It is not yet clear whether all the faulty proteins work in the same way to encourage the cancer.

It is possible to test women for the presence of the gene. But this raises a problem: without a clear preventative treatment for breast cancer, how would identifying the gene in an otherwise healthy woman help? Besides, not everyone with the gene gets breast cancer and not everyone with breast cancer has the gene.

Regular diagnostic screening could spot a tumour early. But this raises a problem: without a clear preventative treatment for breast cancer, so a cancer risk remains. Breast cancer drugs such as tamoxifen have side-effects that may outweigh their benefits.

In practice, a negative test would not rule out either the gene defect or the possibility of contracting breast cancer, while a positive test could affect the patient's insurance policies.

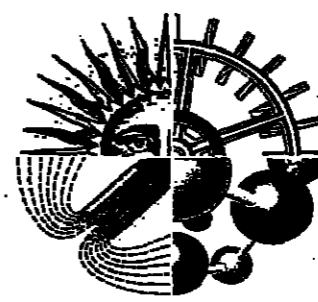
It may be more useful to test women already diagnosed with breast cancer, especially if they are Ashkenazi, because of the high chance of contracting ovarian cancer too if they have the gene.

The lessons learned in all these conditions are likely to prove of ever greater importance as science uncovers new ethnic and geographic concentrations of disease. One of the latest discoveries is that a genetic mutation that confers resistance to HIV, the virus that causes AIDS, is much more prevalent in whites than blacks.

Such findings have not been tainted with the politics of race and religion. The guiding principle is that if medicine can use them to develop better diagnoses and treatments then scientists will keep looking.

The BRCA1 gene is found in about one in 900 people. But it is found in one in 50 with breast cancer and one in 12 under 30 with breast cancer. In Ashkenazi (north European) Jews one in five women under 40 with breast cancer have the gene.

Worth Watching - Vanessa Houlder



Bussay-Hewitt Wool: UK, tel (0)1274 890553; fax (0)1274 794454

When equipment goes for a walk

Large organisations often incur heavy costs as a result of equipment being stolen or mislaid. Newmark Technology, a UK-based security company, has designed a radio-based tagging system to help companies keep track of computers and other valuable equipment. It automatically tracks the tagged assets at distances of up to 100m.

At the same time, the system monitors and controls access to the controlled area. It can monitor an individual's authority to remove property, allowing staff to be alerted if the attempt is unauthorised.

Newmark Technology: UK, tel (0)1787 788800; fax (0)1787 779535

Breakthrough for tough, flexible films

Scientists at the University of Liverpool have found a method of making thin films of super-hard, super-elastic carbon that could potentially be useful as coatings for such things as computer memory disks and surgical implants, according to today's Nature magazine.

They sprayed nanometre-sized particles of carbon called "nanotubes" and "onions" on to a substrate at high speed. The particles were disrupted on impact, causing them to link up in a way that made the films hard and elastic.

University of Liverpool: UK, tel (0)151 7944528; fax (0)151 7944540

Wool process with green benefits

A wool processing system has been developed in Japan that reduces shrinkage during washing, deepens dye colours and colour-fastness and counteracts bacterial infection.

The technique involves weakening and destroying the structure of the wool fibre using mechanical force, and immersing it in oxidising agents. The chemicals employed in the process are less damaging to the environment than those conventionally used in processing.

The wool's anti-bacterial properties of wool processed in this way could make it particularly suitable for wound dressings, medical face-masks and filters.

Such findings have not been tainted with the politics of race and religion. The guiding principle is that if medicine can use them to develop better diagnoses and treatments then scientists will keep looking.

The series on human genes continues next month with a look at arthritis

Optical signals speed information

For the information superhighway to become a reality, ever-larger amounts of digital information have to be transmitted quickly and reliably over long distances.

Philips Optoelectronics Centre and Eindhoven University have claimed a breakthrough in the long-distance transmission of optical signals, by sending a signal with a capacity of 10 Gbit/s (10 thousand million bits per second) over a distance of 420 km. The previous record, stood at 2.5 Gbit/s over a distance of 500 km.

The Dutch experiment used standard optical fibre cables and optical semiconductor amplifiers.

Philips: The Netherlands, tel 402742204; fax 402744947

The personal touch for e-mail

Standard letters personalised with the recipient's name and address have become ubiquitous.

Bussay-Hewitt Processing, which is part of the British Wool Marketing Board, is the UK representative of the system, which is called Enviro-Wool, which is handled in Japan by Nagawa and Daitobo.

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This notice is issued in compliance with the requirements of London Stock Exchange Limited (the "London Stock Exchange"). It does not constitute an invitation or offer to any person to subscribe for or purchase any shares.

Application has been made to the London Stock Exchange for the whole of the issued ordinary share capital of AEA Technology plc to be admitted to the Official List of the London Stock Exchange. It is expected that admission to the Official List will become effective and that dealings in the ordinary shares will commence on Thursday, 26 September 1996.

## AEA Technology plc

(Incorporated and registered in England and Wales under the Companies Act 1985 No. 3095862)

### Placing and Intermediaries Offer

by the Secretary of State for Trade and Industry  
sponsored by J. Henry Schroder & Co. Limited  
of 80,000,000 ordinary shares of 10p each  
at a price of 280p per share

Authorised		Issued and fully paid	
Number	Amount	Number	Amount
120,000,000	£12,000,000	80,000,000	£8,000,000
1	£1	1	£1
		ordinary shares of 10p each	
		special rights redeemable	
		preference share of £1	

The Intermediaries Offer closed at 12 noon on Tuesday, 24 September 1996. The Intermediaries Offer comprises 12.5 per cent. of the ordinary shares.

A supplementary prospectus relating to AEA Technology plc and the Placing and Intermediaries Offer has been published and copies may be obtained during normal business hours on any weekday (Saturdays excepted) until Wednesday, 9 October 1996 from:

J. Henry Schroder & Co. Limited 120 Cheapside London EC2V 6DS	Cazenove & Co. 12 Tokenhouse Yard London EC2R 7AN	AEA Technology plc 329 Harwell Didcot Oxfordshire OX11 0RA
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Copies of the supplementary prospectus will also be available (for collection only during normal business hours) from the Company Announcements Office, London Stock Exchange, Capel Court entrance, off Bartholomew Lane, London EC2N 1HP.

The ordinary shares have not been, and will not be registered under the United States Securities Act of 1933 (as amended) or under the applicable securities laws of Canada, Japan or Australia and may not be offered or sold in any jurisdiction in which an offer or solicitation would be unlawful or to any national, resident or citizen of such jurisdictions and neither the prospectus nor this advertisement is for distribution in or to the United States, Canada, Japan or Australia.

The prospectus has not been prepared in the context of a public offer of securities in France within the meaning of Regulation No. 92.02 of the Commission des opérations de bourse ("COB"), and has therefore not been and will not be submitted to the COB for approval. Applicants for ordinary shares will be required to invest for their own account and not to re-transfer the shares in France, other than in compliance with applicable laws and regulations.

26 September 1996

FRNs see strong demand

INTERNATIONAL BONDS

By Conner Middleman

The Eurobond market leaped back to life yesterday and issuance volumes soared: the US dollar sector saw \$2.35bn of new issues, and the D-Mark sector nearly DM5bn of new supply, including DM3bn of domestic bonds.

Cades picks lead managers for FF12bn issue

By Conner Middleman

Cades, the body set up to manage the French social security system's accumulated debt of FF140bn, yesterday chose BNP and Caisse Nationale du Cr dit Agricole to lead-manage its latest bond issue, Samer Iskandar writes.

Italy's bond future closed 0.45 higher at 106.84, while in the cash market the 10-year yield spread over bunds tightened marginally to 183 basis points.

The bonds were deemed generously priced at 89 basis points over Treasuries, which narrowed by one basis point during the session. Also in fixed rates, Landeskreditbank Baden-W rttemberg issued \$500m of retail-targeted four-year benchmark bond since May 1995: DM500m of 10-year bonds which received a warm welcome.

New international bond issues

Table with columns: Issuer, Amount, Coupon, Price, Maturity, Yield, Spread, Book-runner. Lists various international bond issues from East Japan Railway Co to Drescher Bank.

Final terms, non-callable unless stated. Yield spread over relevant government bonds at launch supplied by lead manager. \*Indicated   floating rate note.   Based on offer price less shown at offer level.   3-month Libor plus 0.25%.

Mideast exchanges sign deal on listings

By Sean Evers in Cairo

The Egyptian, Kuwaiti and Lebanese stock exchanges have signed a deal to begin cross-listing next year. Mr Hisham al-Utaifi, president of the Kuwait Stock Exchange, said cross-listing would "take place as soon as we create a unified clearing, settlement and custody institution".

Italian sector outperforms but rally seen as fragile

GOVERNMENT BONDS

By Samer Iskandar in London and Lisa Bramstein in New York

Optimism following the US Federal Reserve's decision to abstain from tightening monetary policy on Tuesday continued to drive bond markets yesterday. Although European bonds followed Treasuries higher, analysts expect a partial decoupling had occurred between the two blocs, with Emu prospects increasingly setting the trend in Europe, particularly in the high-yielding Italian and Spanish markets.

Italian bonds again showed the strongest performance, with 10-year BTPs rising more than a full percentage point, tightening their yield spread over bunds by 4 basis points to 275 points. Life's December BTP future reached an all-time record, closing 0.78 higher at 119.85, before climbing further to 120.22 after hours.

European economist at Nikko Europe, described the recent rally as fragile. "Uncertainty linked to the forthcoming budget could cause some profit-taking," he said, predicting a possible widening of the yield spread over bunds to around 300 basis points. "At this level, buying interest would support the market," Mr Jessop said. "It would take a real political crisis to widen the spread beyond [300 points]."

UK gilts traded in line with Treasuries and under the Life's December long gilt future settled at 108, up 1/2

Analysis agreed gilts' persistent underperformance was due to the perception that the UK was left out of the convergence process but Mr Jessop said "this is a buying opportunity. The single currency is not a done deal yet, and gilts could benefit from any wobbles on Emu."

US Treasuries added to the gains made late on Tuesday. Near midday the benchmark 30-year Treasury was 8 higher at 96 1/2 to yield 6.589 per cent and the two-year note was 1/4 stronger at

100 1/4, yielding 6.070 per cent. The December 30-year bond future rose 1/4 to 108 1/4. Mr Woody Jay, head of global government trading at Lehman Brothers, attributed some of the buying to hopes that the Fed might not raise interest rates through the end of the year. Figures on September employment levels, due at the end of next week, should go some way to establishing a consensus about the course of monetary policy.

The Egyptian, Kuwaiti and Lebanese stock exchanges have signed a deal to begin cross-listing next year. Mr Hisham al-Utaifi, president of the Kuwait Stock Exchange, said cross-listing would "take place as soon as we create a unified clearing, settlement and custody institution".

WORLD BOND PRICES

BENCHMARK GOVERNMENT BONDS

Table with columns: Coupon, Red Dates, Price, Day's change, Yield, Week ago, Month ago. Lists benchmark government bonds for Australia, Austria, Belgium, Canada, Denmark, France, Germany, Ireland, Italy, Japan, Netherlands, Portugal, Spain, Sweden, UK Gilts, US Treasury, ECU, London clearing, and France.

BUND FUTURES OPTIONS (LIFE) DM250,000 points of 100%

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Bund futures options.

ITALY

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Italian government bond futures options.

SPAIN

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Spanish government bond futures options.

FT-ACQUIRES FIXED INTEREST INDICES

Table with columns: UK Gilts, US Treasuries, Eurozone, etc. Lists FT-acquired fixed interest indices.

FT FIXED INTEREST INDICES

Table with columns: Govt, Corp, etc. Lists FT fixed interest indices.

GILT EDGED ACTIVITY INDICES

Table with columns: 5-year average, etc. Lists gilt edged activity indices.

US INTEREST RATES

Table with columns: Rate, Yield, etc. Lists US interest rates for Treasury bills and bonds.

UK GILTS PRICES

Table with columns: Rate, Yield, etc. Lists UK gilt prices.

OTHER FIXED INTEREST

Table with columns: Rate, Yield, etc. Lists other fixed interest rates.

CONVERTIBLE BONDS

Table with columns: Rate, Yield, etc. Lists convertible bonds.

STRAIGHT BONDS

Table with columns: Rate, Yield, etc. Lists straight bonds.

EUROBOND MARKET

Table with columns: Rate, Yield, etc. Lists Eurobond market data.

NEW ISSUES

Table with columns: Rate, Yield, etc. Lists new bond issues.

MARKET COMMENTARY

Market commentary text discussing bond market trends and forecasts.

FRANCE

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists French government bond futures options.

GERMANY

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists German government bond futures options.

NETIONAL LONG TERM JAPANESE GOVT. BOND FUTURES

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Japanese government bond futures options.

NETIONAL SPANISH BOND FUTURES (MEFF)

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Spanish government bond futures options.

FT/ISMA INTERNATIONAL BOND SERVICE

Table with columns: Issued, Bid, Offer, etc. Lists FT/ISMA international bond service data.

US DOLLAR STRATEGIES

Table with columns: Issued, Bid, Offer, etc. Lists US dollar strategies.

OTHER STRATEGIES

Table with columns: Issued, Bid, Offer, etc. Lists other strategies.

MARKET COMMENTARY

Market commentary text discussing international bond market trends.

NETIONAL FRENCH BOND FUTURES (MATIF) FF500,000

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists French government bond futures options.

NETIONAL GERMAN BOND FUTURES (LIFE) DM250,000 points of 100%

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists German government bond futures options.

NETIONAL LONG TERM JAPANESE GOVT. BOND FUTURES (LIFE) Y100m 100ths of 100%

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Japanese government bond futures options.

NETIONAL SPANISH BOND FUTURES (MEFF)

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Spanish government bond futures options.

NETIONAL ITALIAN GOVT. BOND (BTP) FUTURES (LIFE) Lira 200m 100ths of 100%

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Italian government bond futures options.

NETIONAL LONG TERM JAPANESE GOVT. BOND FUTURES (LIFE) Y100m 100ths of 100%

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Japanese government bond futures options.

NETIONAL SPANISH BOND FUTURES (MEFF)

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Spanish government bond futures options.

NETIONAL ITALIAN GOVT. BOND (BTP) FUTURES (LIFE) Lira 200m 100ths of 100%

Table with columns: Strike, Price, Call, Put, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Lists Italian government bond futures options.

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COMMODITIES AND AGRICULTURE

Voisey's Bay man aims to repeat success with Zairean zinc project

By Kenneth Gooding, Mining Correspondent

Mr Jean-Raymond Boule, who left De Beers to seek a fortune in diamonds but hit the jackpot with the huge Voisey's Bay nickel deposit in Labrador, is attempting to repeat the process with a company that is starting with a zinc project in Zaire.

Drawing on his experience in Africa with De Beers and his native French - he was born in Mauritius - Mr Boule's new company, American Mineral Fields, is about to complete a joint venture with Gemmines, the state owned Zairean group, to reopen the Kipushi zinc-copper mine in the Shaba region.

Mr Boule says he hopes AMPF will have more than 50 per cent of the joint venture which already has government approval.

AMPF has also signed a 50-50 joint venture agreement with Anglo American Corporation of South Africa, one of the world's biggest mining groups, under the terms of which Anglo will fund the first US\$100m of equity in any project either of the partners might undertake in the Shaba region.

Mr Boule, 45, was De

Bears' youngest general manager - in Zaire - and at the age of 29 set up dealing in large diamonds on his own account in Texas. After other diamond mining ventures he founded Diamond Fields Resources in 1992, went public in 1993 and discovered the Voisey's Bay nickel-cobalt deposit a year later. Diamond Fields was acquired earlier this year by Inco of Canada, the world's biggest nickel group, for more than C\$4bn. Mr Boule was co-chairman and owned 10.1 per cent of Diamond Fields. He took Inco shares in exchange for his holding.

His new company, AMPF, was set up last year and is soon to be listed on the Toronto exchange. He says his aim is to provide North American investors with a company through which they can be involved in the developing African mining boom. Most of AMPF's senior management has moved from Diamond Fields while senior operational staff have been recruited from RTZ-CRA, Anglo American and De Beers.

Mr Boule approached Gemmines about the Kipushi project after reading in the annual report that it was looking for joint venture partners. Kipushi's produc-

tion peaked in 1988 at 143,000 tonnes of zinc and 43,000 tonnes of copper. Gemmines, starved of foreign earnings, decided to concentrate on its cobalt interests and put Kipushi on care and maintenance in 1990.

Mr Boule estimates that it will take a maximum of US\$850m to reactivate the mine and for it to produce about 160,000 tonnes of zinc and 30,000 tonnes of copper a year. That would make Kipushi the world's ninth biggest zinc producer.

He suggests there is the potential for AMPF to discover similar high grade zinc deposits in the large concession areas the company has tied up in Zaire and Zambia, where no exploration has been done using modern techniques. Mr Boule retains his affection for diamonds and the first properties to go into AMPF were two diamond projects in Brazil. AMPF also has a 50-50 joint venture with IDAS Resources to develop diamond concessions and other mineral properties held by IDAS in the Cuango River area of Angola. IDAS is a Belgian-Dutch company responsible for clearing anti-personnel mines from the war-torn country.

Competition stiffens in seaweed industry

Alistair Guild on a traditional and useful sideline for Hebridean crofters

Seaweed harvesting has been a tradition, not to mention a useful sideline, for as long as Hebridean crofters and fishermen can remember. But competition now is more intense than ever among the world's seaweed suppliers and the companies that extract the alginate and supply it, principally as a powder, to the textile and pharmaceutical industries.

It is less than 18 months since an integrated harvesting and production facility on the coast of Nova Scotia closed, after 20 years. The cost of obtaining the licence required under Canadian environmental regulations was said to be one factor. Another was insufficient economy of scale.

The market for Scottish "kelp" (a word now commonly applied to all large brown seaweeds) seems assured, for the next five years at least. Kelco, the multinational food industry products group, is the world's largest single producer of alginates. The company, bought last year by the American corporation Monsanto from Merck & Company for \$1.06bn, has a contract to take 4,500 tonnes (wet weight) each year of Western Isles brown seaweed, principally ascophyllum nodosum. Kelco is expected to purchase an additional 2,500 tonnes this year to meet demand.

Ascophyllum grows in the "tidal range" so in the Hebrides a full-day's harvesting is feasible only on five days each fortnight, during spring tides. It is possible for two cutters working together to produce about 50 tonnes (wet weight) in that time, collecting \$15 a tonne. A plant on the island of Benbecula collects, washes and mills the seaweed. The plant, operated by Uist Seaweed Processors, a locally owned company, is being modernised at a cost of \$241,000, \$200,000 of that a grant from Western Isles Enterprise. The company insists on evidence of a commitment to purchase five years' output at least. The plant's capacity will be increased to 10,000 tonnes, the number of cutters could rise from the present 28 and a further three locals join the seven already employed in washing and milling.

There is no shortage of seaweed here, says Mr MacDonald, a local haulage contractor and the man behind USP. The haulier is paid \$50 a tonne (wet) at Kelco's factory gate. But it is still only feasible with a return load, says Mr MacDonald. He is already filling up 300 lorries to transport 7,000 tonnes.

Kelco will close its own alginate manufacturing plant at Oban, on Scotland's mainland at the end of the year. It is one of three manufacturing facilities operated by Kelco, the others being at Girvan in Ayrshire and San Diego in California. The decision was taken on economic grounds, says the company.

Overall world demand for alginates has increased by 3,000 tonnes since the early 1990s. Present world alginate production is now estimated at 27,000 tonnes with a market value of \$300m. Textile printing accounts for 50 per cent of demand. The alginate is mixed with pigment to control its viscosity, and so the clarity of the print. Another major application is in the making of ice cream and other dairy products. The alginate prevents the formation of coarse ice crystals and provides a smooth texture. It is in the textile industry where competition is strongest, particularly from the Chinese manufactured alginates.

Several factors affect the economics of seaweed: ● Mechanical seaweed harvesters can reduce costs but are only suitable for countries with well-defined inshore rock plateaus, such as Iceland, Norway, Canada and California. Seaweeds growing in inter-tidal areas, such as ascophyllum can then be harvested at high tide, with an underwater cutter bar set a few feet below the surface. The west coast of Scotland, where one of these harvesters was developed, has a very irregular inshore rock pattern with rock pinnacles that can severely damage the harvester. ● Some seaweeds recover faster than others from harvesting. Ascophyllum takes three to five years to re-grow, older plants of the Californian coast grow as fast as any other known plant. The same patch of sea can be harvested three times in one year. ● The Chinese have cultivated large areas of seaweed from spores, with the weed itself, mostly of the laminaria variety, being attached to cords. Cultivation has been found to be uneconomic when labour costs are at all significant. Introducing unnaturally large canopies of seaweed to an area can

also have important ecological consequences. ● Air-drying of seaweeds is possible in some countries, for example Chile, Iceland, with access to free geothermal energy, also exports its seaweed dried and ground. ● The amount of algin depends on the species, the part of the plant used and on the season. The durvillaea species found in Australian waters contains the highest proportion of algin.

Processing innovation, energy efficiency and integration with processing of other seaweed products such as fertiliser would enhance the competitiveness of West-ern Isles sales, concluded a report on the industry by Scottish-based consultants Environment and Resource Technology published last year.

Tavay Organics, with a factory on the island of Lewis since the 1960s, provides an example of successful diversification. It has not just dried seaweed to Kelco but other seaweed derived products in both dried and liquid form to island and mainland customers. These include fertilisers and plant and animal food. Basic dry meal sells at present for about \$300 a tonne. "People have been looking for alternatives to alginates as long as alginates have been around, and they are still around," says Mr Richard Scaria, manager, international seaweed resources, at Kelco. "We are investing heavily in our alginate business, a statement in itself of our confidence in alginate's future."

Copper prices relinquish gains

Forward COPPER prices relinquished early gains yesterday afternoon after the London Metal Exchange's three months delivery position again failed to challenge overhead resistance at \$1,950 a tonne. The main feature of the market, traders said, was a narrowing in the newly-es-

tablished cash discount. Profit-taking and expectations of bank and US broker selling prevented the market pushing higher in the afternoon, they said, but cash metal buying and borrowing (buying cash and selling forward) reduced the cash to \$9 to less than \$5. The ALUMINIUM market was hesitant throughout,

having been unable to make headway above \$1,400 a tonne. That suggested another test of support was likely, traders said. NICKEL prices settled back from midsession highs, although the market remained broadly stable throughout the afternoon. The last trade was at \$7,260 a tonne, up \$45. Compiled from Reuters

Alcan makes move on Quebec smelter plan

By Robert Gibbens in Montreal

Alcan Aluminium of Canada has taken a key step towards getting started on its US\$1bn Alma smelter project in

northern Quebec. The company has filed an official project notification with the Quebec provincial government in preparation for public hearings. The final decision on a

construction go-ahead was still at least a year away, Alcan said. The smelter, with a maximum annual capacity of 350,000 tonnes, depending on market conditions, would replace an exist-

ing 50-year-old unit with 74,000 tonnes annual capacity. This summer Alcan signed a contract with Hydro-Quebec that will provide it with an additional 350MW of

power over and above its own captive power generating capacity in the Saguenay region. This would give the flexibility needed for the Alma smelter, the company said.

COMMODITIES PRICES

BASE METALS

Table with columns for metal type (Aluminum, Copper, Lead, Tin), price change, high, low, and open prices.

Precious Metals continued

Table with columns for metal type (Gold, Silver, Platinum, Palladium), price change, high, low, and open prices.

GRAINS AND OIL SEEDS

Table with columns for grain type (Wheat, Soybeans, Maize, Barley), price change, high, low, and open prices.

SOFTS

Table with columns for soft commodity type (Cocoa, Coffee, Sugar, White Sugar, White Sugar Liffe), price change, high, low, and open prices.

MEAT AND LIVESTOCK

Table with columns for livestock type (Live Cattle, Live Hogs, Pork Bellies), price change, high, low, and open prices.

ENERGY

Table with columns for energy type (Crude Oil, Heating Oil, Gas Oil), price change, high, low, and open prices.

PRECIOUS METALS

Table with columns for precious metal type (Gold, Silver), price change, high, low, and open prices.

FUTURES DATA

Table with columns for futures type (Nuts and Seeds, Soybean Meal, Soybean Oil, Soybean Liffe), price change, high, low, and open prices.

INDICES

Table with columns for index type (REUTERS, CRB Futures, GSCI Spot), price change, high, low, and open prices.

JOTTER PAD

Table with columns for date, price change, high, low, and open prices for various commodities.

LONDON TRADED OPTIONS

Table with columns for option type (Aluminum, Copper, Gold, Silver, Soybean), price change, high, low, and open prices.

LONDON SPOT MARKETS

Table with columns for spot market type (Crude Oil, Heating Oil, Gas Oil, Natural Gas), price change, high, low, and open prices.

CROSSWORD

Crossword puzzle grid with clues for Across and Down words.

Handwritten signature or mark at the bottom of the page.





Offshore Funds and Insurances

FT MANAGED FUNDS SERVICE

FT Cityline Unit Trust Prices are available over the telephone. Call the FT Cityline Help Desk on (+44 171) 673 4376 for more details.

Main table containing financial data for various funds and insurance companies, including columns for fund names, prices, and other financial metrics.

OFFSHORE INSURANCES

Table listing offshore insurance companies and their respective financial details.

LUXEMBOURG (REGULATED)

Table listing Luxembourg-regulated funds and their financial data.

Handwritten signature or mark at the bottom of the page.

FT MANAGED FUNDS SERVICE

FT Cityline Unit Trust Prices are available over the telephone. Call the FT Cityline Help Desk on (+44 171) 673 4376 for more details.

Main table of fund prices and performance data, organized into columns for various fund categories and providers.

Handwritten Arabic text at the top of the page.

Mid-east exchanges sign deal on listings

NEW DIGITAL COPIER. OLD MONEY. RICOH Aficio 400. Only £8,940. Freefone 0800 303050

OTHER OFFSHORE FUNDS

Table listing various offshore funds and their details.

PROTECTED FUNDS NOTES: Information regarding fund protection and regulatory requirements.

LONDON SHARE SERVICE

ALCOHOLIC BEVERAGES

Table listing companies in the Alcoholic Beverages sector with columns for company name, price, and change.

BANKS, MERCHANT

Table listing companies in the Banks, Merchant sector with columns for company name, price, and change.

BANKS, RETAIL

Table listing companies in the Banks, Retail sector with columns for company name, price, and change.

BREWERS, PUBS & REST

Table listing companies in the Brewers, Pubs & Rest sector with columns for company name, price, and change.

BUILDING & CONSTRUCTION

Table listing companies in the Building & Construction sector with columns for company name, price, and change.

BUILDING MATS. & MERCHANTS

Table listing companies in the Building Mats. & Merchants sector with columns for company name, price, and change.

CHEMICALS

Table listing companies in the Chemicals sector with columns for company name, price, and change.

CHEMICALS - Cont.

Continuation of Chemicals sector table.

DISTRIBUTORS

Table listing companies in the Distributors sector with columns for company name, price, and change.

DIVERSIFIED INDUSTRIALS

Table listing companies in the Diversified Industrials sector with columns for company name, price, and change.

ELECTRICITY

Table listing companies in the Electricity sector with columns for company name, price, and change.

ELECTRONIC & ELECTRICAL EQPT

Table listing companies in the Electronic & Electrical Eqpt sector with columns for company name, price, and change.

ENGINEERING, VEHICLES

Table listing companies in the Engineering, Vehicles sector with columns for company name, price, and change.

EXTRACTIVE INDUSTRIES

Table listing companies in the Extractive Industries sector with columns for company name, price, and change.

ELECTRONIC & ELECTRICAL EQPT - Cont.

Continuation of Electronic & Electrical Eqpt sector table.

ENGINEERING

Table listing companies in the Engineering sector with columns for company name, price, and change.

EXTRACTIVE INDUSTRIES - Cont.

Continuation of Extractive Industries sector table.

FOOD PRODUCERS

Table listing companies in the Food Producers sector with columns for company name, price, and change.

ENGINEERING - Cont.

Continuation of Engineering sector table.

EXTRACTIVE INDUSTRIES - Cont.

Continuation of Extractive Industries sector table.

HOUSEHOLD GOODS

Table listing companies in the Household Goods sector with columns for company name, price, and change.

EXTRACTIVE INDUSTRIES - Cont.

Continuation of Extractive Industries sector table.

FOOD PRODUCERS - Cont.

Continuation of Food Producers sector table.

HOUSEHOLD GOODS - Cont.

Continuation of Household Goods sector table.

INSURANCE

Table listing companies in the Insurance sector with columns for company name, price, and change.

INVESTMENT TRUSTS

Table listing companies in the Investment Trusts sector with columns for company name, price, and change.

INVESTMENT TRUSTS - Cont.

Continuation of Investment Trusts sector table.

INVESTMENT TRUSTS - Cont.

Continuation of Investment Trusts sector table.

HOUSEHOLD GOODS - Cont.

Continuation of Household Goods sector table.

INSURANCE - Cont.

Continuation of Insurance sector table.

INVESTMENT TRUSTS - Cont.

Continuation of Investment Trusts sector table.

INVESTMENT TRUSTS - Cont.

Continuation of Investment Trusts sector table.

INVESTMENT TRUSTS - Cont.

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INVESTMENT TRUSTS - Cont.

Continuation of Investment Trusts sector table.

INVESTMENT TRUSTS - Cont.

Continuation of Investment Trusts sector table.

INVESTMENT TRUSTS - Cont.

Continuation of Investment Trusts sector table.

Advertisement for ACL (Associated Contract Hire Ltd) featuring the text 'In a word, MIRACLE' and 'Worldwide wonder in the world of contract hire and fleet management'. Includes phone number 0800 269895 and the ACL logo.

مقالات العرب

LONDON SHARE SERVICE

مكتبة العمل

DIV TRUSTS SPLIT CAPITAL - Cont.

Table listing various Dividend Trusts with columns for company name, share price, and other financial metrics.

OTHER INVESTMENT TRUSTS

Table listing other investment trusts with columns for company name, share price, and other financial metrics.

INVESTMENT COMPANIES

Table listing investment companies with columns for company name, share price, and other financial metrics.

LEISURE & HOTELS

Table listing leisure and hotel companies with columns for company name, share price, and other financial metrics.

LEISURE & HOTELS - Cont.

Table listing leisure and hotel companies (continued) with columns for company name, share price, and other financial metrics.

OIL EXPLORATION & PRODUCTION

Table listing oil exploration and production companies with columns for company name, share price, and other financial metrics.

OIL, INTEGRATED

Table listing integrated oil companies with columns for company name, share price, and other financial metrics.

OTHER FINANCIAL

Table listing other financial companies with columns for company name, share price, and other financial metrics.

PAPER, PACKAGING & PRINTING - Cont.

Table listing paper, packaging, and printing companies (continued) with columns for company name, share price, and other financial metrics.

PHARMACEUTICALS

Table listing pharmaceutical companies with columns for company name, share price, and other financial metrics.

PROPERTY

Table listing property companies with columns for company name, share price, and other financial metrics.

PROPERTY - Cont.

Table listing property companies (continued) with columns for company name, share price, and other financial metrics.

RETAILERS, FOOD

Table listing retailers and food companies with columns for company name, share price, and other financial metrics.

RETAILERS, GENERAL

Table listing general retailers with columns for company name, share price, and other financial metrics.

SUPPORT SERVICES

Table listing support services companies with columns for company name, share price, and other financial metrics.

SUPPORT SERVICES - Cont.

Table listing support services companies (continued) with columns for company name, share price, and other financial metrics.

TELECOMMUNICATIONS - Cont.

Table listing telecommunications companies (continued) with columns for company name, share price, and other financial metrics.

TEXTILES & APPAREL

Table listing textiles and apparel companies with columns for company name, share price, and other financial metrics.

TOBACCO

Table listing tobacco companies with columns for company name, share price, and other financial metrics.

TRANSPORT

Table listing transport companies with columns for company name, share price, and other financial metrics.

WATER

Table listing water companies with columns for company name, share price, and other financial metrics.

AIM

Table listing companies on the Alternative Investment Market (AIM) with columns for company name, share price, and other financial metrics.

AIM - Cont.

Table listing AIM companies (continued) with columns for company name, share price, and other financial metrics.

AMERICANS

Table listing American companies with columns for company name, share price, and other financial metrics.

CANADIANS

Table listing Canadian companies with columns for company name, share price, and other financial metrics.

SOUTH AFRICANS

Table listing South African companies with columns for company name, share price, and other financial metrics.

Advertisement for Merseyside featuring the text: 'OUR EMPLOYEES ARE VERSATILE, RELIABLE AND DEDICATED. WE ARE PROUD TO BE PART OF MERSEYSIDE'. Includes contact information for Carol Bachelor at 0800 22 0151.

GUIDE TO LONDON SHARE SERVICE

Price for the London Share Service delivered by hand, part of Financial Times Information. Company classifications are based on those used for the FT-SE 100. Share prices are shown in pence unless otherwise stated. Rights and lots are based on the day of publication or a date to be published.

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LONDON STOCK EXCHANGE

Relief at Fed rate decision boosts shares

MARKET REPORT

By Steve Thompson, UK Stock Market Editor

London's equity market reacted with surprise and considerable enthusiasm to the US Federal Reserve's refusal to nudge interest rates higher.

That news saw gilts pick up after an uncertain start and eventually close with good gains on balance. Gilts were additionally supported by a strong showing supported by a strong showing supported by a strong showing...

by the leaders, with the FT-SE Mid 250 finishing with a 14.9 gain at 4,400.

He said the odds favoured the FT-SE 100 taking another look at the 4,000 mark in the not-too-distant future.

institutions' cash piles and said the appearance of any sizeable bids would see the market well on its way to 4,000.

Sizeable seller in Vodafone

By Joel Kibazo, Lisa Wood and Peter John

Turnover in mobile phones group Vodafone Group rose to 45m, making it the most heavily traded stock of the day.

BZW declined to give details of the deal but was said to have taken a 3p a share turn on the transaction.

There was little indication of the seller of the stock though several market participants suggested it was likely to be a US holder.

Royal Bank of Scotland nudged towards the top of the list of Footsie risers as a period of strong underperformance gave an opportunity to revisit old takeover speculation.

SEAO bargains 34,361 38,343 38,874 40,363 37,178 28,836

Kwik Save was the biggest loser on the FT-SE 250, falling 25 to 341 1/2 following a "sell" note from Mr Paul Smiddy of Credit Lyonnais.

The second tier food retailer has been criticised for some months by analysts, with its price steadily falling for over a year.

Mr Smiddy said that investors who had bought into Kwik Save all the way down needed to do some hard thinking to anticipate how the company would be reshaped, and the attractiveness of the company's strategic review.

The company, he said, had either to return to its low cost roots or choose to become more of a neighbourhood supermarket.

We believe it has decided on the latter route. This will mean softer competition for many companies.

That slide, principally as a result of concerns about the bank's Direct Line insurance subsidiary, has prompted some analysts and market-makers to reconsider the bank's vulnerability to a takeover.

Royal Bank has always said it would not countenance the loss of its independence but one banking specialist commented: "It is one thing to argue against a takeover when the shares are at 550p but quite another when they are a pound lower."

The main perceived aggressor has traditionally been HSBC and that was the name being whispered again yesterday.

Also, NatWest was apparently steering brokers away from the view that it is considering an offer for Legal & General, the life assurance group.

Transport and property group P&O was one of the day's winners following the publication of an aggressive buy note from one of its joint brokers.

The shares gained more than 3 per cent as they jumped 18 to 595p, making them the best performing stock in the FT-SE 100.

Pannure Gordon suggest the recently proposed joint venture with Dutch group Nedlloyd will give a strong boost to the group.

As a result of the City's concern over the group's low returns, this deal represents a double whammy boost to both earnings and sentiment.

The broker suggests the stock should be on a market rating for 1997 and has set a target share price of 676p.

The same broker also published a bullish note on British Aerospace. Shares in the group responded by moving 13 1/2 ahead to 1051p.

Mark & Spencer hardened 5 1/2 to 501 1/2 following an upgrade by UBS, which raised this year's forecast by 3 per cent to £1.60m and by 4 per cent next year to £1.80m.

UBS, which reiterated its "buy" stance, said there was stronger trading generally in the clothing sector and that there had been a good start to the autumn season.

A "buy" note on Next was also reiterated by UBS which went from "hold" following recent interim results.

Great Universal Stores climbed 10 to 685 1/2 following a "buy" note from ABN-Amro Hoare Govett after a "sum of the parts" valuation which put a price of between 750p and 770p on

the stock. Granada fell 12 to 855 1/2, following what had been described by some analysts as a reasonably successful pre-close season meeting between them and the company earlier this week.

Analysts had expressed some concerns, including the pace of disposal of the group's Exclusive hotel chain.

Guinness fell 4 to 454 1/2 ahead of today's results. Nikko issued a "hold" recommendation.

Surrey Free Inns, an AIM stock, climbed 14 to 32 1/2 with speculation that the parent company, in which Regent Inns has a stake, could be a potential takeover target.

Regent Inns added 5 1/2 to 243p.

Another also pointed to the FT-SE 100 taking another look at the 4,000 mark in the not-too-distant future.

Customer trading on Tuesday was worth £1.4bn.



Indices and ratios

Table with columns for Index Name, Value, Change, and Ratio. Includes FT-SE 100, FT-SE Mid 250, FT-SE All-Share, and Long gilt yield.

Best performing sectors

- 1 Oil Exploration & Prod +1.4
2 Banks Retail +1.2
3 Engineering +1.3
4 Transport +1.0
5 Extractive Industries +1.0

Worst performing sectors

- 1 Tobacco -1.0
2 Telecommunications -0.8
3 Leisure & Hotels -0.2
4 Chemicals -0.5
5 Distributors -0.2

FUTURES AND OPTIONS

Table for FT-SE 100 INDEX FUTURES (LIFFE) and FT-SE 100 INDEX OPTION (LIFFE) with columns for Open, Best Price, High, Low, Est. Vol, and Open Int.

Table for FT-SE 100 INDEX OPTION (LIFFE) with columns for Index, Strike, Bid, Ask, and Volume.

Table for EURO STYLE FT-SE 100 INDEX OPTION (LIFFE) with columns for Index, Strike, Bid, Ask, and Volume.

Table for LONDON RECENT ISSUES: EQUITIES with columns for Issue Name, Price, and Change.

Table for FT GOLD MINES INDEX with columns for Index Name, Value, and Change.

Table for FT-SE Actuaries Share Indices with columns for Index Name, Value, and Change.

Table for The UK Series with columns for Index Name, Value, and Change.

Table for FT-SE Actuaries 350 Industry baskets with columns for Index Name, Value, and Change.

Table for Hourly movements with columns for Index Name, Value, and Change.

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Table for Hourly movements with columns for Index Name, Value, and Change.

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Large table containing various financial data, including FT-SE 100, FT-SE Mid 250, FT-SE All-Share, and various industry baskets.

Handwritten Arabic text: كوكب الجوز

Highs & Lows shown on a 52 week basis

WORLD STOCK MARKETS

EUROPE

Table listing stock market data for various European countries including Austria, Belgium, Denmark, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, and Switzerland.

ASIA

Table listing stock market data for Asian countries including Australia, Hong Kong, Japan, Korea, Malaysia, New Zealand, Singapore, South Africa, Taiwan, Thailand, and the Philippines.

PACIFIC

Table listing stock market data for Pacific countries including Canada, Mexico, and the United States.

MIDDLE EAST

Table listing stock market data for Middle Eastern countries including Israel, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

AFRICA

Table listing stock market data for African countries including Egypt, Kenya, Mauritius, Nigeria, South Africa, and Zimbabwe.

EUROPE (continued)

Continuation of European stock market data tables.

ASIA (continued)

Continuation of Asian stock market data tables.

PACIFIC (continued)

Continuation of Pacific stock market data tables.

MIDDLE EAST (continued)

Continuation of Middle Eastern stock market data tables.

AFRICA (continued)

Continuation of African stock market data tables.

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INDICES

Table showing various global stock indices with columns for index name, current value, and percentage change.

US INDICES

Table showing US stock indices including Dow Jones, S&P 500, and Nikkei, with columns for index name, current value, and percentage change.

NEW YORK ACTIVE STOCKS

Table listing active stocks in New York with columns for stock name, price, and volume.

TOKYO - MOST ACTIVE STOCKS

Table listing most active stocks in Tokyo with columns for stock name, price, and volume.

INDEX FUTURES

Table showing data for various index futures contracts.

NEW YORK ACTIVE STOCKS

Continuation of New York active stocks table.

TOKYO - MOST ACTIVE STOCKS

Continuation of Tokyo most active stocks table.

NEW YORK ACTIVE STOCKS

Continuation of New York active stocks table.

TOKYO - MOST ACTIVE STOCKS

Continuation of Tokyo most active stocks table.

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4 PM (EST) September 25

NEW YORK STOCK EXCHANGE PRICES

Main table containing stock prices for various companies, organized by sector and alphabetically. Includes columns for stock name, price, and change.

Market Dynamics. If the business decisions are yours, the computer system should be ours. Hewlett-Packard logo and website URL.

Continued on next page



NEW YORK STOCK EXCHANGE PRICES

Main table of stock prices with columns for stock symbols, prices, and changes. Includes sub-sections for 'NEW YORK STOCK EXCHANGE PRICES', 'NASDAQ LISTED STOCKS', and 'NASDAQ LISTED STOCKS'.

Market Dynamics advertisement for Hewlett-Packard, featuring a computer monitor and the text: 'If the business decisions are yours, the computer system should be ours. http://www.hp.com/go/computing'.

Handwritten signature or mark at the bottom center of the page.

Continued on next page

Dow mixed despite technology gains

AMERICAS

US shares were mixed at mid-session as the market continued to digest Tuesday's news that the Federal Reserve had decided against raising short-term interest rates...

helped by a strong earnings report from 3Com, the computer networking company. By mid-session 3Com's shares had advanced 86% or 12 per cent at \$63.

TORONTO moved higher in moderate volume to end the morning session with the 300 composite index ahead 13.03 at 5,312.69.

EUROPE

Shares in FRANKFURT pushed deeper into new high ground, motivated by a strong bond market and a recovery for the dollar.

within 44 points of April's peak. The CAC-40 ended with a gain of 21.91 to 2,108.41.

FT-SE Actuaries Share Indices

Table with columns for Date, Index, and various share indices like FTSE 100, FTSE 250, etc.

continued to improve following positive comment on its new anti-depressant drug. The shares rose F15.20 to F1204.10.

between the company and Motor Columbus... Saurer soared SFR28 to SFR51 as the textile machinery and engineering group raised its full year profits forecast...

Caracas advance continues

Caracas kept the flame alight for Latin America after a morning session that saw most stock markets move lower.

a gain of about 1.4 per cent. Caracas has been pushing up to new highs lately and yesterday some initial weakness was quickly shrugged off.

said that the uncertain start on Wall Street and Tuesday's high inflation data had soured sentiment.

High-tech rally propels Nikkei ahead

Reports of a rise in memory chip prices prompted a rally in TOKYO's high-technology stocks and the Nikkei index closed up 0.8 per cent.

Fudosen rose Y50 to Y1,450, Mitsubishi Estate gained Y90 to Y1,510 and Sumitomo Realty and Development rose Y24 to Y860.

WONIA,000 and Pohang Iron and Steel gained Won2,500 to Won4,500.

but drifted lower through the rest of the session to close at 2,944.10, down 4.09.

announce a successor soon. SINGAPORE saw further demand for Creative Technology, up S\$1.45 to S\$9.20 on arbitrage buying and an upgrade of the stock by Merrill Lynch.

EMERGING MARKETS: IFC WEEKLY INVESTABLE PRICE INDICES

Table with columns for Market, No. of stocks, Dollar terms, and Local currency terms, listing various emerging markets like Latin America, Brazil, Chile, etc.

Czech shares continued to slide lower yesterday as worries about the economy and the continuing fall-out from the recent banking crisis sparked a further round of profit-taking, writes Jeffrey Brown.

ASIA PACIFIC

The Nikkei 225 index closed up 0.8 per cent at the day's high of 21,939.44. After an earlier rise to 22,020.25, the index gained ground on reports of rising prices for 15 megabit dynamic random access memory chips...

Volume totalled 266m shares against 281m. Overseas investors chased high-technology shares while brokerage dealers placed buying orders in small lots.

WELLINGTON hit a 30-month peak in early trading. The market initially rose on the announcement that prime minister Banbari Silpa-archa is to resign.

Advertisement for YAGEO Yageo Corporation, featuring the text 'The Leading Edge in Asia Pacific' and 'YAGEO Yageo Corporation' along with financial details and logos for Jardine Fleming and Schrodgers.

FT/SEI ACTUARIES WORLD INDICES

Table with columns for National and Regional Markets, showing indices for various countries and regions like Americas, Europe, Asia, etc.

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